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FIVE-YEAR REVIEW REPORT FOR JACOBS SMELTER SUPERFUND SITE STOCKTON, UTAH

Prepared by:

Utah Department of Environmental Quality
Division of Environmental Response and Remediation
CERCLA Branch

For:

United States Environmental Protection Agency
Region 8
Environmental Protection and Remediation
Superfund Remedial Program
Denver, Colorado 80202

Approved by: *Date:*

9/30/15

Martin Hestmark
Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

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LIST OF ACRONYMNS

AOC	Administrative Order on Consent
ATV	All-Terrain Vehicle
bgs	Below ground surface
BLM	United States Bureau of Land Management
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response Compensation and Liability Information System
CFR	Code of Federal Regulations
CSS	Contaminant Screening Survey
DERR	Division of Environmental Response and Remediation
EECA	Engineer Evaluation and Cost Assessment
EPA	Environmental Protection Agency
FWS	Fish and Wildlife Service
HDPE	High Density Polyethylene
KUCC	Kennecott Utah Copper (Rio Tinto)
NCP	National Contingency Plan
NPL	National Priorities List
OU1	Operable Unit One
OU2	Operable Unit Two
OU3	Operable Unit Three
OU4	Operable Unit Four
OU5	Operable Unit Five
OU6	Operable Unit Six
PA/SI	Preliminary Assessment/Site Inspection
PRGs	Preliminary Remediation Goals
RAOs	Remedial Action Objectives
RFS	Revised Feasibility Study
RI	Remedial Investigation
RI/FFS	Remedial Investigation/Focused Feasibility Study
ROD	Record of Decision
SHPO	State Historic Preservation Office
Site	Jacobs Smelter Superfund Site
TCLP	Toxicity Characteristic Leaching Procedure
UDEQ	Utah Department of Environmental Quality
UPRR	Union Pacific Railroad
USDOT	United States Department of Transportation

EXECUTIVE SUMMARY

The Utah Department of Environmental Quality, Division of Environmental Response and Remediation, in cooperation with the U.S. Environmental Protection Agency, Region 8, has conducted the third Five-Year review of the remedial actions implemented at the Jacobs Smelter Superfund Site located in Stockton, Utah.

The Jacobs Smelter Superfund Site is divided into six operable units. The contaminants of concern for all operable units are lead and arsenic in soil.

- Operable Unit 1 (OU1) consists of residential properties within Stockton that had contamination attributable to the former Jacobs Smelter.

- Operable Unit 2 (OU2) consists of lead and arsenic contaminated soil located to the west of Stockton (attributable to the Waterman Smelter).

- Operable Unit 3 (OU3) consists of contaminated soil located on the Stockton Rail Yard, owned by Union Pacific.

- Operable Unit 4 (OU4) consists of a parcel of land that lies between the Rawhide Ranchettes Subdivision and OU3, owned by Rio Tinto Kennecott Copper (formerly Kennecott Utah Copper LLC, KUCC).

- Operable Unit 5 (OU5) consists of land located to the northeast of Stockton and near Waterman Smelter that is owned by the U.S. Bureau of Land Management (BLM).

- Operable Unit Six (OU6) consists of contamination associated with the Chicago and Carson Buzzo Smelters originally included in OU2. In 2014 these areas were separated from OU2 and established as OU6 due to differences in land use and potential exposure pathways.

Cleanup activities have been completed at OU1, OU3, OU4 and at the Rawhide Ranchettes subdivision in OU2.

The remedy at OU1 is protective of human health and the environment. The immediate threats posed by the contamination associated with OU1 have been addressed. The excavation and off-Site disposal of the top 18 inches of contaminated soil performed during the Emergency Removal and State-lead Remedial Action construction activities for OU1 have effectively eliminated the majority of the risk associated with the Jacobs Smelter. The risk associated with the contaminated soil remaining after excavation is effectively reduced by the 18 inches of clean fill and topsoil and the landscaping placed on each property. A Stockton ordinance and the associated soil management plan and repository address risks if excavation occurs in areas with contaminated soil below 18 inches

The remedy implemented at the Rawhide Ranchettes Subdivision within OU2 is now protective of human health and the environment. A time critical removal was performed by the EPA to address contaminated soil on four lots within the subdivision in 2010 to 2011. Remedial action has not been implemented at the Waterman Smelter and B&B subdivision portions of OU2.

The Feasibility Study for OU2 was updated in 2013 to incorporate additional sampling around the Waterman Smelter. The EPA and UDEQ issued a Proposed Plan in September 2015 that proposed excavation and offsite disposal of contaminated soil as the Preferred Remedy for the remainder of OU2

The remedy at OU3 is protective of human health and the environment. The immediate threats posed by the contamination associated with OU3 has been addressed. The cap, vegetative cover and fence installed on the Stockton Rail Yard provide an adequate barrier preventing exposure to contaminated soil in OU3.

The remedy at OU4 is protective of human health and the environment. The immediate threats posed by the contamination associated with OU4 have been addressed. The excavation, stabilization and off-site disposal of soils with lead concentrations exceeding 500 mg/kg have effectively reduced the risk of exposure to contaminated soil. The contaminated soil remaining within OU4 lies underneath a large gravel hill and is not easily accessible. An Environmental Covenant has been placed upon the property and has been recorded with the Tooele County Recorder's Office. The Environmental Covenant describes what additional sampling and cleanup work is needed for the remaining contaminated material if the land use changes.

The remedy implemented at the portion of OU5 north of the Waterman Smelter is protective of human health and the environment. This determination of protectiveness is based solely on BLM's documents. Remedial action has not been implemented at the portion of OU5 northeast of Stockton.

OU6 was created in January 2014 to address the Chicago and Carson Buzzo smelters. No Removal or Remedial activities have been performed on OU6. Consequently a protectiveness determination has not been made. Potential human health and ecological risk from lead and arsenic contamination remain throughout OU6.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: Jacobs Smelter		
EPA ID: UT0002391472		
Region: 8	**State:** UT	**City/County:** Stockton/Tooele
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the site achieved construction completion?** No	
REVIEW STATUS		
Lead agency: State **If "Other Federal Agency" was selected above, enter Agency name:**		
Author name (Federal or State Project Manager): Thomas D. Daniels		
Author affiliation: State Project Manager		
Review period: 5/4/2015 – 9/30/2015		
Date of site inspection: 6/11/2015		
Type of review: Statutory		
Review number: 3		
Triggering action date: 9/30/2010		
Due date *(five years after triggering action date)*: 9/30/2015		

Issues/Recommendations

OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1, OU3, OU4
Issues and Recommendations Identified in the Five-Year Review:

OU2	**Issue Category: Remedy Performance**			
	Issue: There is no Final Decision Document			
	Recommendation: Complete Record of Decision			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
Yes	Yes	EPA/State	EPA/State	12/31/2016
OU2	**Issue Category: Remedy Performance**			
	Issue: Cleanup is needed at the Waterman Smelter and B&B Subdivision			
	Recommendation: Implementation of Remedial Design and Remedial Action			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
Yes	Yes	EPA/State	EPA/State	12/31/2018
OU5	**Issue Category: Remedy Performance**			
	Issue: Some type of agreement is needed with the BLM to facilitate clean up			
	Recommendation: Potential MOU with the BLM			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
Yes	Yes	EPA	EPA	9/30/2016
OU5	**Issue Category: Remedy Performance**			
	Issue: Cleanup is needed at OU5, north of Stockton			
	Recommendation: Removal or Remedial Action at OU5			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
Yes	Yes	Federal Facility	EPA/State	12/31/2018

OU6	Issue Category: Changed Site Conditions			
	Issue: Human health and ecological risk have not been evaluated for agricultural land use at OU6			
	Recommendation: Cooperative agreement between the EPA and UDEQ for an agricultural use risk assessment and additional characterization			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
Yes	Yes	EPA/State	EPA/State	12/31/2017
OU6	**Issue Category: Remedy Performance**			
	Issue: Cleanup is needed at OU6			
	Recommendation: RI/FS for OU6 followed by ROD			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
Yes	Yes	EPA/State	EPA/State	12/31/2017

Protectiveness Statement(s)

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable)*
1	Protective	

Protectiveness Statement:

The remedy at OU1 is protective of human health and the environment and the immediate threats posed by the contamination associated with OU1 has been addressed. The excavation and off-site disposal of the top 18 inches of contaminated soil performed during the time critical removal and the State-lead Remedial Action construction activities for OU1 have effectively eliminated the majority of the risk associated with the Jacobs Smelter. The risk associated with the contaminated soil remaining after exaction is reduced by the 18 inches of clean fill and top soil and the landscaping placed on each property. A Stockton ordinance and the associated soil management plan and repository address risks if excavation occurs in areas with contaminated soil below 18 inches.

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable):*
2	Not Protective	

Protectiveness Statement:

The remedy implemented at the Rawhide Ranchettes Subdivision within OU2 is now protective of human health and the environment. A time critical removal was performed by the EPA to address contaminated soil on four lots within the subdivision in 2010 to 2011. Remedial action has not been implemented at the Waterman Smelter and B&B subdivision portions of OU2.

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable):*
3	Protective	

Protectiveness Statement:

The remedy at OU3 is protective of human health and the environment. The immediate threat posed by the contamination associated with OU3 has been addressed. The cap, vegetative cover and fence installed on the Stockton Rail Yard provide an adequate barrier to exposure to contaminated soil in OU3.

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable):*
4	Protective	

Protectiveness Statement:

The remedy at OU4 is protective of human health and the environment. The immediate threats posed by the contamination associated with OU4 have been addressed. The excavation, stabilization and disposal of contaminated soil effectively reduces the risk of exposure to contaminated soil. The contaminated soil remaining within OU4 lies underneath a large gravel hill and is not easily accessible. An Environmental Covenant recorded at the Tooele County Recorder's Office for this parcel describes sampling and clean up that is needed if the gravel hill is ever disturbed.

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable):*
5	Not Protective	

Protectiveness Statement:

The remedy performed at the portion of OU5 north of the Waterman Smelter is protective of human health and the environment. This determination of protectiveness is based solely on BLMs representation. Remedial action has not been implemented at the portion of OU5 northeast of Stockton.

Operable Unit:	*Protectiveness Determination:*	*Addendum Due Date (if applicable):*
6	Not Protective	

Protectiveness Statement:

No Removal or Remedial activities have been performed on OU6. Consequently a protectiveness determination has not been made.

JACOBS SMELTER SUPERFUND SITE
THIRD FIVE-YEAR REVIEW REPORT

I. INTRODUCTION

The Utah Department of Environmental Quality (UDEQ), Division of Environmental Response and Remediation (DERR) has been tasked by the U.S. Environmental Protection Agency (EPA) Region 8, to conduct a Five-Year review of the remedial and removal actions implemented at the Jacobs Smelter Superfund Site (Site) located in and around Stockton in Tooele County, Utah. This review was conducted from May 2015 to September 2015. This report documents the results of the review.

This Five-Year review is being prepared pursuant to the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) CERCLA Section 121(c) as amended states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

EPA interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the third Five-Year review for the Jacobs Smelter Site. The triggering action for this review is the completion of the second Five-Year review completed in September of 2010. The Five-Year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unrestricted use and unlimited exposure

The Site has been divided into six Operable Units

- Operable Unit One (OU1) - Addressed residential soil contamination within the Town of Stockton, attributable primarily to the Jacobs Smelter.
- Operable Unit Two (OU2) - Consists of soil contamination outside of the Town of Stockton's 1999 boundaries (attributable to the Waterman smelter operations).
- Operable Unit Three (OU3) - Addressed soil contamination on Union Pacific property.

- Operable Unit Four (OU4) - Addressed lead and arsenic contamination on property owned by Rio Tinto Kennecott Copper (formerly Kennecott Utah Copper LLC) (KUCC).
- Operable Unit Five (OU5) - Consists of lead and arsenic contamination on property owned by the United States Bureau of Land Management (BLM).
- Operable Unit Six (OU6) – Contamination associated with the Chicago and Carson Buzzo Smelters. In 2014 these areas were separated from OU2 and established as OU6 due to differences in land use and potential exposure pathways.

II. SITE CHRONOLOGY

Table 1 – Chronology of Site Events

Event	Date
Volunteer soldiers discovered silver ore east of Stockton and organized the first mining district. The area around the military reservation became the base for small-scale milling and smelting activities. The Town of Stockton was established in 1864 and contained over 400 residents by 1866.	April 1864
Several small smelting furnaces were built in the area, operated for a short time with marginal results and then shut down. The exact location of most of these smelters is unknown.	1866-1868
The Waterman Smelting Works were constructed on the north shore of Rush Lake about ½ mile west of Stockton and operated continuously until 1886. The smelter reportedly produced a total of approximately 3,300 tons of flue dust and nearly 15,000 tons of smelter slag.	1871-1886
The Jacobs Smelter began operation within the town limits of Stockton. The smelter processed ore from the Ophir Mining District, located 10 miles south of Stockton, in three vertical blast furnaces. By 1880, each of these furnaces could process 25 tons of ore per day, producing 19.5 tons of smelter slag and flue dust per day.	1871
The Chicago smelter opened in 1873 on the eastern shore of Rush Lake two miles south of Stockton. It was built by the Chicago Silver Mining Company, a British firm that also operated two nearby mines. The smelter operated sporadically through 1880. The Carson & Buzzo smelter was located about a ½ mile south of the Chicago smelter, also on the shore of Rush Lake. The production rate of these smelters is unknown.	1873-1880
At least nine smelting/milling operations are reported to have existed in the Stockton area, over the ensuing century. Nearly all traces of these operations have vanished. Buried timbers, stained soils and some foundations are virtually all of the physical evidence that remains. Homes were built upon a portion of the former Jacobs Smelter location. Much of the slag produced was likely reprocessed in other smelters located in the Tooele valley or the Salt Lake valley. Through historical research and direct observation, the exact locations of the Jacobs, Waterman, Chicago and Carson & Buzzo Smelters have been found. The locations of other	1880-1995

unnamed operations can only be speculated based upon sampling of soils to test for the presence of heavy metals.	
The Stockton Area was added to the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) under the name of "Stockton Smelters."	1995
The EPA and UDEQ completed a Preliminary Assessment and Site Investigation (PA/SI) and the name of the entire Site was changed to Jacobs Smelter.	1998
The EPA initiated a time-critical removal action to address soil contamination of residential properties located in Stockton.	March 1999
The EPA and UDEQ completed a Remedial Investigation/Focused Feasibility Study (RI/FFS) for OU1. The RI/FFS identified approximately 125 residential properties within Stockton that required clean up.	June 1999
The EPA notified Union Pacific of contamination on their right-of-way and requested a time-critical removal be performed to address the contamination (OU3).	April 1999
Contaminated soils in OU3 were remediated by Union Pacific. Soil cover was selected as the remedy.	Summer 1999
The EPA issued a Record of Decision (ROD) for OU1.	July 29, 1999
The entire Site was added to the National Priorities List (NPL).	Feb 4, 2000
Lead and arsenic contamination identified in the Rawhide Ranchettes subdivision located within OU2.	May 2000
Remedial Action for OU1 started.	May 5, 2000
The EPA and UDEQ conduct a Contaminant Screening Study for OU2.	July 2000
Physical construction completed for OU1 Remedial Action.	October 2000
The EPA and UDEQ perform a Pre-Remedial Investigation for OU2.	July 2001
A PRP non-time-critical removal action for five contaminated lots in the Rawhide Ranchettes subdivision was completed by Titan Development LLC.	August 2001
EPA conducted a land re-use assessment.	Sep 2001
Partial deletion of OU1 from NPL.	2001
The EPA and UDEQ conducted a Remedial Investigation (RI) for OU2.	July 2003
Partial deletion of OU3 from NPL.	2003
The EPA and UDEQ conducted a Revised Feasibility Study for OU2.	July 2004
A Proposed Plan was published for OU2.	August 2004
Creation of Operable Unit 4 (OU4) and a non-time-critical removal action.	July to November 2008

Sampling of Rawhide Ranchettes Lot # 3 by UDEQ at property owners request discovers lead concentrations above cleanup levels.	September 2008
Addendum to the OU2 Revised Feasibility Study (RFS) to investigate lead and arsenic concentrations in two subdivisions located within OU2, the B&B and Rawhide Ranchettes Subdivisions, and to revisit the alternatives and associated cost estimates.	September 2009 to September 2010
The EPA and UDEQ re-evaluate human health risk due to ATV use.	June 2010
Removal activities at Rawhide Ranchettes Subdivision.	October 2010 to May 2011
Clean up of soil on BLM property near Waterman Smelter.	December 2012
Boundary change for OU2, creation of OU6.	January 2014
Updated Revised Feasibility Study.	June 2014
Additional sampling of Waterman Smelter area.	May 2013
Proposed Plan for OU2.	September 2015

III. BACKGROUND

General Site Description

The Jacobs Smelter Site is located within Rush Valley, Tooele County, Utah. The most significant population in the valley resides in Stockton, approximately 38 miles southwest of Salt Lake City via Interstate 80 and Utah Highway 36, and five miles southwest of the city of Tooele. The Stockton area was the center of a silver and base metal mining, milling and smelting district from the 1860s until 1970. No industries and very few retail/commercial businesses currently exist in Stockton. In general, land surrounding Stockton is used for agricultural and recreational purposes.

The Site is referred to as "Jacobs Smelter," after the name of a large smelting operation that was located within Stockton. Reports of up to nine former smelters with milling operations within the Site boundaries have been documented. The Jacobs Smelter was one of these historic smelters. The entire Superfund Site was named Jacobs Smelter as a matter of convenience.

The topography of the Site is dominated by the Rush Valley floor, which is generally smooth, at an elevation of 5,000 feet. Within the northern extent of Rush Valley is Rush Lake, which is located in a closed drainage basin. Because of this, the lake level and size fluctuate over time, with its highest water level recorded in 1877 and its lowest water level reached in the summer of 2002 with virtually no standing water.

The risks posed by the Site derive from smelting and mining activity, which occurred primarily in the 1860s and 1870s. Wastes in the form of heavy metal contaminated soil, mill tailings, and smelter wastes exist at several locations within the Site boundaries. The primary contaminants are lead and arsenic.

Figure 1 shows the Site and Operable Unit boundaries.

Former, Current and Future Land and Resource Use

The area around Stockton is generally open grassland and used primarily for grazing. The topography of the area is gently sloping from east to west towards Rush Lake. Several single-family dwellings and farms exist in the area. Stockton is mostly residential, with only a few small businesses. Approximately 500 people reside within a four-mile radius around Stockton. Due to its location near the City of Tooele, the area is prime for growth and residential development.

Rush Lake is the dominant surface water feature in the area. The lake is recharged primarily through ground water flow and several springs, which empty into the lake. Water levels in the lake have fluctuated greatly over the years, with the lake size changing drastically. In the spring of 2015, there was virtually no standing water observed in Rush Lake.

Ground water at the Site consists of a shallow aquifer that feeds into Rush Lake, perennial springs and a deep aquifer. The shallow aquifer in Rush Valley is of poor quality and is not anticipated to be used as a drinking water source. The deep aquifer lies at a depth of 200 feet below ground surface (bgs) and is used as a drinking water source for private residences. There is no evidence that suggests the shallow and deep aquifers are hydraulically connected.

History of Contamination

In April 1864, volunteer soldiers discovered silver ore east of Stockton and organized the first mining district in the area. The area around the military reservation became the base for small-scale milling and smelting activities. The Town of Stockton was established in 1864. By 1866, the town contained over 400 inhabitants. Several smelting furnaces were built in the area, operated for a short time with marginal results, and then were shut down. The exact locations of most of these smelters remain unknown.

By 1870, mining in the area had expanded and smelting technology had improved to the point that metals extraction was profitable. The largest smelter in the Stockton area was the Waterman Smelting Works, which opened in 1871 on the northern shore of Rush Lake, about a half mile west of Stockton. The smelter operated through 1886 and produced approximately 3,300 tons of flue dust and nearly 15,000 tons of smelter slag.

In 1872, the Jacobs Smelter, owned by Lilly, Liesenring & Company, began operation within the town limits of Stockton. The smelter processed ore from the Ophir Mining District, located 10 miles south of Stockton, in three vertical blast furnaces. By 1880, each of these furnaces could process 25 tons of ore per day. In 1879, the Great Basin Concentrator was constructed adjacent to the Jacobs Smelter and by 1880 was milling 100 tons of ore per day with approximately 80 tons of mill tailings produced as waste.

The Chicago Smelter opened in 1873 on the eastern shore of Rush Lake two miles south of Stockton, within the boundary of the former military camp. It was owned and operated

by the Chicago Silver Mining Company, a British firm that also operated two nearby mines. The smelter operated sporadically through 1880. The Carson & Buzzo Smelter was located about half mile south of the Chicago Smelter, also on the eastern shore of Rush Lake. The production rate of these smelters is unknown.

There was also mining activity further east in the Oquirhh Mountains. The largest contributor to mining activities in this area was the Honerine Mine. Founded around 1900, the mine also had a stamp mill on site and an extensive tunnel system, which drained westward into existing gullies just east of Stockton. In addition to the large Smelters in and around Stockton, there were numerous small smelters and stamp mills within the Rush Valley. A total of at least nine smelting/milling operations are reported to have been in operation in the Stockton area, including those mentioned here.
Nearly all traces of these smelting operations have vanished. Buried timbers, stained soils, and some foundations are virtually all of the physical evidence that remain. Homes were built upon a portion of the former Jacobs Smelter location. Much of the slag produced was likely reprocessed at other smelters located in the Tooele Valley or the Salt Lake Valley.

Initial Response

OU1

In 1995, the Site was added to the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) under the name Stockton Smelters. A Preliminary Assessment and Site Investigation (PA/SI) detected lead and arsenic in Site soils in December 1998, and the name of the entire Site was changed to Jacobs Smelter. EPA conducted a removal assessment in 1998. The assessment showed lead and arsenic at concentrations that represented a significant risk to human health and the environment.

The EPA initiated a time-critical removal action in March 1999 to clean up 29 of the most contaminated residential properties in Stockton. The EPA issued a Record of Decision (ROD) for OU1 on July 29, 1999. The Jacobs Smelter Superfund Site was added to the National Priorities List on February 4, 2000. In 2000, UDEQ cleaned an additional 126 residential properties pursuant to the 1999 ROD. The residential properties cleaned up during the removal action and the remedial actions for OU1 were deleted from the National Priorities List (NPL) in 2001.

OU2

Remedial Investigations for OU2 began in 1999. Due to the large geographic extent of OU2 and the relatively small amount of data available, a Contaminant Screening Study (CSS) was conducted to identify the general areas of contamination in OU2 and to establish a geographic boundary for future study. During the CSS, elevated concentrations of heavy metals were found in the soils of a proposed subdivision within OU2, known as the Rawhide Ranchettes Subdivision.

In order to address data gaps identified by the CSS and the Rawhide Ranchettes subdivision investigation and to focus Remedial Investigation activities for OU2, a Pre-Remedial Investigation study was conducted in early 2001.

In 2001, a Human Health Risk Assessment (HHRA) was developed for OU2. A land reuse assessment was finalized in 2001. The land reuse assessment looked at current land use and habitat types as well as reasonably anticipated future land use.

A Remedial Investigation (RI) that characterized lead and arsenic contaminated soil was performed for OU2 in 2002. Based on the data collected during the RI, the results of the HHRA and ecological risk assessment performed in 2003, cleanup levels were established for OU2.

A focused investigation of the Rawhide Ranchettes subdivision in May 2001 indicated that five of the 30 lots within the subdivision exceeded the residential lead screening levels. A non-time critical removal action under an Administrative Order on Consent (AOC) for the five contaminated lots was completed by a developer in 2001. The removal action consisted of excavating six to 18 inches of contaminated soil from the identified lots and placing the contaminated soil within the roadbed, and in a covered repository located within the subdivision that remains deeded to the subdivision's developer.

A Feasibility Study was prepared in December 2003. A Revised Feasibility Study (RFS) was developed in 2004. The RFS identified and evaluated several different alternatives for cleaning up contaminated soil.

In July 2004, KUCC) conducted a soil characterization investigation of a parcel within OU2 that was located to the immediate northeast of Stockton. The purpose of the investigation was to better define the nature and extent of lead and arsenic contamination on the parcel. The results of KUCC's investigation suggested that the lead and arsenic contamination came from up-gradient waste rock piles that are actively eroding and depositing waste rock on the Kennecott Stockton Northeast Parcel. In December 2007, the EPA requested that KUCC collect additional soil samples from the parcel to further characterize the parcel and more definitively assess the source of the contamination. Based on the results of these two sampling events, the EPA and the UDEQ concurred that the elevated concentrations of lead and arsenic were from up-gradient mining waste rock piles and were not associated with smelter wastes from the Jacobs Smelter Superfund Site. Thus, in 2009 an Administrative Order on Consent was signed requiring KUCC to address the Kennecott Northeast Parcel through a removal action. The Order documents that this parcel is no longer part of the Jacobs Smelter NPL Site.

In order to address concerns regarding lead and arsenic contaminated soil associated with the Waterman Smelter and to re-visit the remedial alternatives and associated cost estimates in the 2004 RFS, soil samples were collected and analyzed during 2009 and 2010. The results of these sampling efforts triggered an additional EPA-conducted time-

critical removal of contaminated soil from four residential lots within the Rawhide Ranchettes subdivision. This work was completed during the fall of 2010 and spring of 2011.

OU3

In 1999, the Union Pacific Railroad (UPPR), under agreement with the EPA, addressed the contamination on OU3 by placing a 16-inch soil cover over the contaminated soils in the railroad right-of-way through Stockton. OU3 was partially deleted from the NPL on November 29, 2005.

OU4

In July 2008, the EPA issued an Administrative Order on Consent and Action Memorandum to KUCC that required KUCC to clean up a parcel located near the Stockton Railyard and east of the Rawhide Ranchettes Subdivision. The parcel was designated as Operable Unit 4 (OU4). The documents specified a cleanup level of 500 mg/kg lead in residential areas and also required covering soil contaminated with lead at concentrations between 3,000 mg/kg and 10,000 mg/kg lead for non-residential areas, and removal of all soil containing more than 10,000 mg/kg lead.

KUCC conducted a removal action consistent with the terms of the AOC and Action Memorandum between mid-September and mid-November 2008. Soil with lead concentrations greater than 500 mg/kg was removed from OU4 except for where contaminated soil was located underneath a large gravel hill near the railroad bed and could not be accessed without impacting the railroad. An Environmental Covenant was put in place for this contamination.

Basis for Taking Action

Hazardous substances that have been released at the Site include lead and arsenic in surface and subsurface soils.

A HHRA based on sampling results from the RI/FS was performed for the Site. The purpose of the HHRA was to characterize risks related to residential, industrial/commercial and recreational exposures to the contaminants of concern in the environment.

The HHRA concluded that there is a risk to both adults and children from lead and arsenic-contaminated soils. The most likely ways for contaminated soils to enter the body are eating and breathing. Children, particularly those under the age of seven, are the most vulnerable group because of their size and the fact that their bodies are still developing. In addition, because children play outside, they are more likely to ingest contaminated soils when they put fingers and toys that have been in contact with the ground into their mouths.

In addition to the HHRA, an Ecological Risk Assessment (ERA) was conducted to evaluate the potential threats to ecological receptors (plants and animals) in and around Rush Lake, and the surrounding area, from exposure to Site contaminants. It concluded that terrestrial animals are at risk from the contaminants of concern at the non-residential portion of the Site. The primary threat to ecological receptors is from exposure to lead.

IV. REMEDIAL ACTIONS

Remedy Selection

OU1

The EPA issued a Time Critical Removal Action Memorandum at the Jacobs Smelter Site on February 2, 1999. The action, as described in the Action Memorandum, included:

- Excavation to a depth of 18 inches of all properties with average surface soil concentrations exceeding 3000 mg/kg for lead;
- Off-site disposal of contaminated soils; and
- Replacement of contaminated soil with 12 inches of clean soil and 6 inches of topsoil.

Following the time critical removal, performed by the EPA, the ROD for the remainder of OU1 was signed on July 29, 1999. The ROD identified the following five Remedial Action Objectives:

- Reduce risks from exposure to lead contaminated soil such that no child has a more than 5% chance of exceeding a blood lead level of 10 micrograms per deciliter.
- Reduce risks from exposure to arsenic contaminated soil such that no person has a greater than 1×10^{-4} chance of contracting cancer.
- Clean the Site up to levels that allow for residential use.
- Remove as much contamination as practicable which could serve as a source of contamination to groundwater.
- Prevent the occurrence and spread of windblown contamination.

The ROD identified excavation and off-site disposal as the selected remedy for OU1. The selected remedy involved the excavation of approximately 150,000 tons of lead and arsenic contaminated soil from contaminated properties. Excavated soils were disposed in a suitable landfill based on classification of the soil as hazardous or non-hazardous in accordance with Subtitle C of the Resource Conservation and Recovery Act (RCRA).

The major components of the OU1 remedy include:

- Excavation of soils to a maximum depth of 18 inches within Stockton exhibiting mean surface lead concentrations greater than 500 ppm, mean subsurface lead

concentrations greater than 800 ppm, or mean surface arsenic concentrations greater than 100 ppm.

- Testing of excavated material for hazardous waste characteristics with off- site treatment and disposal of characteristic hazardous material in a Subtitle C landfill, and off-site disposal of non-hazardous material in a Subtitle D landfill.
- Replacement of excavated soil with up to twelve inches of clean backfill and six inches of clean topsoil and the re-landscaping of affected properties.
- Interior cleaning of affected properties to remove contaminated indoor dust.
- Development and implementation of institutional controls to restrict exposure to residual contamination below eighteen inches and below existing structures.

OU2

An AOC with Titan LLC, the developer of the Rawhide Ranchettes Subdivision located within OU2, was signed on August 2, 2001. The AOC identified the following actions:

- Removal of contaminated soils and other material from the areas designated as future residential lots.
- Relocation of contaminated material to other areas of the property based upon whether the material meets the criteria for a hazardous waste.
- Construction and maintenance of an on-site repository for contaminated material.

In 2004, a Proposed Plan for OU2 was issued. The Proposed Plan identified the following remedial actions:

(1) excavation and off-site disposal of all surface soils with a surface lead concentration greater than 500 ppm and all subsurface soils in excess of 800 ppm lead as the preferred remedy for residential properties within OU2; and
(2) excavation and off-site disposal of soils with lead concentrations over 10,000 ppm to a maximum depth of 18 inches and soil cover over lead concentrations between 3,000 and 10,000 ppm lead as the preferred remedy for non-residential areas.

Based on comments received during the Proposed Plan public comment period, OU4 and OU5 were created to be addressed by KUCC and BLM respectively, and an area northeast of Stockton was removed from the Site boundaries as explained in the Initial Responses section of this document.

In order to address concerns regarding lead and arsenic contaminated soil associated with the Waterman Smelter and to re-visit the remedial alternatives and associated cost estimates from the 2004 RFS, soil samples were collected and analyzed by the EPA and UDEQ during 2009 and 2010 at both the Rawhide Ranchettes and B&B subdivisions. Lead concentrations above the residential cleanup levels were found in five lots within the Rawhide Ranchettes subdivision and at four lots within the B&B subdivision. The results of this sampling triggered in a time critical removal of contaminated soil from residences within the Rawhide Ranchettes Subdivision, performed in 2010 and 2011.

A second Proposed Plan was issued in September 2015 that identified excavation of contaminated soil to a depth of 18 inches in both residential and undeveloped land with off-site disposal as the preferred remedy. The preferred remedy calls for approximately 70,000 tons of contaminated soil to be removed from the Site and disposed of at a permitted off-site disposal facility. Contaminated soil at depths greater than 18 inches will be covered with clean soil, reducing the risk of direct exposure, ingestion or inhalation. Figure 2 shows the area to be addressed in the Proposed Plan.

The potential for contaminated soil spreading will be minimized due to the permanent removal of accessible contamination and clean soil over any remaining contamination. Institutional controls, annual monitoring, and operations and maintenance will be needed to assure the protectiveness of the remedy. After a public comment period, a remedy will be selected and ROD issued.

OU3

An AOC and an Action Memorandum with UPRR for OU3 were signed on August 2, 1999. The AOC approved a work plan that identified the following minimum actions:

- Construction of a soil cover consisting of a minimum of 12 inches of clean fill and 4 inches of topsoil;
- Seeding of the covered area with native vegetation;
- Construction of an access road within the capped area; and
- Construction of a six-foot high chain link fence along the east side of the OU.

OU4

An AOC with KUCC was signed in September 2008. The work that was performed and described in the AOC consisted of:

- Soil sampling;
- Qualified analysis of soil sample for metals, including lead and arsenic;
- Mapping of sampling locations to determine specific on-site sources and general off-site sources of contamination;
- The removal of hazardous substance on the OU4 property and disposal of impacted (contaminated) soils at a repository; and
- Complying with institutional controls as applicable (ie. an Environmental Covenant governing the use of any areas where contamination remained after construction activities were concluded).

OU5

In 2009, the Bureau of Land Management (BLM) prepared a draft Engineering Evaluation and Cost Assessment (EECA) for property within the Site under their jurisdiction.

In July 2012, the BLM issued a Time Critical Removal Action Memorandum for the Jacobs Smelter Superfund Site, Operable Unit 5 Waterman Smelter Area. The work consisted of:

- Excavation of approximately 2,155 cubic yards of lead and arsenic contaminated soil;
- Off-site disposal of contaminated soil at a permitted facility;
- Confirmation sampling; and
- Re-contouring and seeding of excavated areas.

OU6

Contamination associated with the Chicago and Carson Buzzo Smelters was originally included in OU2. These smelters are located approximately two miles south of Stockton and are more remote than the Waterman Smelter. The area is mainly used for agricultural purposes and represents a different exposure scenario than the Waterman Smelter area. The risk associated with contamination related to the Waterman Smelter was calculated using residential and recreational use exposure scenarios. Based on the difference in uses, differences in exposure scenarios, and the remote location of the Chicago and Carson Buzzo Smelters in relation to Stockton, the risk and exposure assumptions used for the Waterman Smelter are not applicable to the Chicago and Carson Buzzo Smelters. As a result, in January 2014 these areas were removed from OU2 and established as OU6.

Remedy Implementation

OU1

Removal Activities

During the summer of 1999, removal activities were completed by the EPA on 29 properties in Stockton where there was evidence of high concentrations of lead in the soil. Before cleanup activities commenced, the property design map was reviewed by each property owner.

Once the design was approved by the property owner, EPA's contractor cleared and removed specified shrubs, trees and debris from the property. Upon completion of all clearing work, approximately 18 inches of contaminated soil was removed from each property and stockpiled at a staging area north of Stockton. After excavation, confirmation samples were taken from the base of each excavation. Post excavation results for each of the properties cleaned up can be found in Appendix D of the START Removal Summary Report for Jacobs Smelter, Stockton, Utah.

Following excavation, 12 inches of clean fill and 6 inches of topsoil were placed on each property. After placement of topsoil, sod, plants, trees, sprinkler systems and fences that were removed in order to perform the cleanup were replaced.

A total of 52,000 tons of material was excavated during this cleanup. Cleanup activities generated 25,470 tons of contaminated non-hazardous material, 14,001 tons of hazardous material that was treated and stabilized on-site prior to off-site disposal, and 1,180 tons of hazardous material requiring off-site treatment and disposal. The treated and untreated hazardous material was disposed at the Grassy Mountain Disposal Facility located in Tooele County, Utah.

Figure 3 shows properties that were cleaned up during the OU1 Removal and Remedial Actions.

Remedial Action Activities

During the summer of 2000, the remaining contaminated properties in OU1 were cleaned up per the ROD as part of a State lead remedial action.

Individual properties were excavated to depths of 6, 12, or 18 inches depending on lead and arsenic concentrations. Approximately 60,000 cubic yards of contaminated soil were excavated from residential yards, vacant lots, rights of way, unpaved streets and sidewalks within Stockton.

Excavated material was characterized to determine if it exhibited a characteristic of hazardous waste prior to disposal. Non-hazardous contaminated soil was disposed at a specially constructed disposal cell at the Toole County landfill, located approximately three miles north of the Site. Approximately 58,670 cubic yards of contaminated soil were disposed at the Tooele County facility. Hazardous contaminated soil was disposed at the Envirosafe, RCRA Subtitle C hazardous waste landfill located in Grandview, Idaho. Approximately 1,974 tons of hazardous contaminated soil were transported and disposed at this facility.

After excavation, indicator sampling was performed on all properties that were excavated to a depth of 18 inches to determine the concentrations of lead and arsenic remaining on each property. Post excavation results can be found in Table 3-1 of the Final OU1 Remedial Action Completion Report.

The excavated soil on each lot was replaced with up to 12 inches of common backfill and six inches of topsoil. The source of common backfill was the northern and central portions of the Tooele County Landfill property. Envirocon performed tests on the borrow sources and certified that it did not contain hazardous waste or substances defined in 40 CFR Part 261, Subpart D and CERCLA Section 101(4), as amended.

The topsoil for each lot was developed from the topsoil present at the borrow source. The topsoil was screened to remove particles greater than ¾ inch and was amended with organic material to meet specification requirements. Topsoil was placed on the top six inches of each of the cleaned up lots.

After placement of topsoil, sod, plants, trees, sprinkler systems and fences that were removed in order to perform the cleanup were restored.

OU2

Rawhide Ranchettes

The Closure Report – Contamination Remediation, Rawhide Ranchettes, Stockton, Utah describes the work performed by the Rawhide Ranchettes developer. It states that contaminated surface soils were excavated from Lots 2 and 3 and placed in a repository located directly south of Lot 18 of the Rawhide Ranchettes Subdivision. Approximately 1,250 cubic yards of hazardous materials (soils that failed TCLP) were removed from these three lots and placed in the repository.

The hazardous materials in the repository were capped with a 60-millimeter high density polyethylene (HDPE) flexible membrane liner. The cap was inspected by a UDEQ representative to ensure that the liner was installed according to the manufacturer's recommendations. The HDPE liner was then covered with 24 inches of uncontaminated soil followed by topsoil that has been seeded with native grasses and wildflowers. The entire repository has been enclosed with a 4-foot high chain link fence. The developer retained ownership and responsibility for operation and maintenance.

Non-hazardous contaminated soil (soils that passed TCLP) with elevated concentrations of lead was removed from lots 1, 2, 21 and 22. The contaminated soil was placed underneath a section of roadway within the subdivision. The roadway excavation was approximately 5 feet deep and approximately 15 feet wide. Approximately 3,650 cubic yards of contaminated, non-hazardous material was placed within the subdivision roadway. The contaminated, non-hazardous material was covered with 1.5 feet of uncontaminated soil, 8 inches of road base and 2.5 inches of asphalt.

Confirmation sampling of remediated lots was performed by the UDEQ using a portable X-Ray fluorescence machine (XRF). The confirmation sampling demonstrated that the contaminated materials had been removed from the targeted lots.

A second time-critical-removal action was performed by the EPA from October 2010 to May 2011 on four lots within the Rawhide Ranchettes with surface and subsurface lead concentrations above the residential cleanup levels. Cleanup consisted of excavation of contaminated soil to a depth up to 12 inches. Excavated soil was disposed at an off-site facility. Excavated areas where filled with clean soil and top soil and then reseeded.

Figure 4 shows the lots addressed by both removal actions.

OU3

The Remedial Actions Report for the Union Pacific Railroad right-of-way, dated January 28, 2000, describes the remedial actions performed by Union Pacific on OU3. Soil used to construct the soil cap was obtained from England Construction's Borrow Pit located in Bauer, Utah. The soil cap was sloped at the sides to provide a gentle, even slope to the natural grade. Twelve-inches of clean soil and an additional 4 inches of topsoil were placed over sections of the OU that contained lead concentrations greater than 1,200 ppm. A 16-foot wide gravel access road was constructed along the length of the east and west sides of the railroad track within the capped area. The road was constructed using a 4-in. layer of crushed rock with a maximum size of 2-in. The road extends from the railroad ballast on the west side of the Site and joins the soil cap on the east. A 6-foot-high chain link fence was also erected on the east side of the track.

Figure 5 shows the areas that were capped in OU3.

OU4

The Removal Action Final Report, dated May 29, 2009, describes the removal action performed by KUCC on OU4. An estimated 10,760 cubic yards of contaminated soil was removed from OU4 and placed in KUCC's Arthur Stepback Repository. All contaminated soil with concentrations of lead greater than 10,000 mg/kg was treated by mixing with a proprietary product to reduce the leachabilty characteristics of the soil prior to disposal. Approximately 2,000 cubic yards were stabilized.

Wastes placed in the Arthur Stepback Repository were placed in twelve inch lifts and compacted. The final lift was graded, ripped and seeded as an interim closure for the working area where the contaminated soil was deposited. Final closure of the repository will occur in the future when the repository reaches design capacity.

Following removal of the contaminated soil the property was reclaimed. Reclamation work included the grading and scarifying of the excavated areas. The entire Removal area was seeded with a soil mix as specified in the workplan. KUCC continues to monitor the re-vegetation success of the seeded area and repair as determined necessary. Figure 6 shows the excavation location and depths for the OU4 removal.

OU5

The Time Critical Removal Action Final Report for OU5, dated December 2012, describes the removal activities performed by the BLM on the portion of OU5 near the Waterman Smelter. According to the report 2,841 cubic yards of contaminated soil were removed from an area of 4.78 acres and disposed at the Clean Harbor, Grassy Mountain Disposal Facility.

Following removal of the contaminated soil confirmation sampling was performed by the BLM using an XRF. Excavated areas were contoured to blend with adjacent undisturbed

areas to preserve the natural integrity of the area. The area was re-seeded with a native seed mix. The removal action and associated confirmation sampling was performed by the BLM using BLM removal authority and did not include EPA or UDEQ oversight.

Figure 7 shows the area of OU5 addressed by this action.

OU6

No Removal or Remedial actions have been performed at OU6 at this time.

Operation and Maintenance

OU1

There are no active systems that require operation at OU1. The removal of contaminated material to a depth of 18 inches left very little contaminated material in the cleanup areas. The Town of Stockton passed an ordinance covering excavation and development within the Town in May of 2000. The ordinance explains how to manage potentially contaminated soil.

OU2

Rawhide Ranchettes

There are no active systems that require operation at the Rawhide Ranchettes Subdivision. An inspection of the repository was conducted by the developer on September 19, 2002 and results of the inspection were submitted to the EPA. As a result, a notification of completion was sent to the developer on September 19, 2005. The status of the repository has been investigated as part of subsequent Five-Year reviews and will continue to be investigated for subsequent Five-Year reviews.

Lead and arsenic contaminated soil remaining at the Waterman Smelter and the B&B Subdivision will be addressed as described in the September 2015 Proposed Plan.

OU3

There are no active systems that require operation at OU3 and the AOC does not specify any operation or maintenance activities. A notification of completion was sent to UPRR September 14, 2005. The status of the cap and fence were investigated as part of this Five-Year review and found to remain protective. The status of the cap and fence will continue to be investigated for subsequent Five-Year reviews.

OU4

There are no active systems that require operation at OU4. Soils containing elevated lead and arsenic concentrations that remain at OU4 (underneath the gravel hill) will be

managed using an environmental covenant. After construction, the area under the gravel hill was surveyed to document the aerial extent of the area to be managed by the environmental covenant signed by KUCC, EPA Region 8 and UDEQ in 2008 and was recorded at the Tooele County recorder's office on June 4, 2009.

The grade of the OU is such that erosion of the gravel hill is not expected to be a concern. The remediated area was inspected several times by KUCC and re-seeded as necessary to assure that a viable vegetative cover was established. Active erosion of the gravel hill was not noted prior to construction and is not expected now that vegetation is established.

OU5

There are no active systems that require operation at the portion of OU5 near the Waterman Smelter that was addressed by the time-critical-removal action performed by the BLM.

Lead and arsenic contaminated soil remains at the rest of OU5 northeast of Stockton.

OU6

No cleanup has occurred at OU6. Lead and arsenic contaminated soil remains at OU6

V. PROGRESS SINCE LAST FIVE-YEAR REVIEW

Protectiveness Statements from the 2010 Five-Year Review:

"The remedy performed on OU1 is protective of human health and the environment. The immediate threats posed by the contamination associated with OU1 have been addressed. The excavation and off-site disposal of the top 18 inches of contaminated soil performed during the Emergency Removal and State lead Remedial Action construction activities for OU1 have effectively eliminated the majority of the risk associated with the Jacobs Smelter. The risk associated with the contaminated soil remaining after excavation is effectively reduced by the 18 inches of clean fill and topsoil and the landscaping placed on each property.

The remedy performed on the Rawhide Ranchettes Subdivision within OU2 is not protective of human health and the environment.

The remedy performed on OU3 is protective of human health and the environment. The immediate threats posed by the contamination associated with OU3 have been addressed. The cap, vegetative cover and fence installed on the Stockton Rail Yard provide an adequate barrier to exposure to contaminated soil in OU3.

The remedy performed on OU4 is protective of human health and the environment. The immediate threats posed by the contamination associated with OU4 have been addressed. The excavation, stabilization and off-site disposal of soils with lead concentrations

exceeding 500 mg/kg has effectively reduced the risk of exposure to contaminated soil. The contaminated soil remaining within OU4 lies underneath a large gravel hill and is not easily accessible. An Environmental Covenant that describes what additional sampling and cleanup work is needed on the contaminated material remaining has been placed upon the property and has been recorded with the Tooele County Recorder's Office."

The following table lists the issues noted in the 2010 Five-Year Review Report:

Table 2 – Issues Noted in the 2010 Five-Year Review Report

#	OU#	Issues	Affects Protectiveness (Y/N)	
			Current	Future
1	1	ICs have not been fully implemented	N	Y
2	2	There is no final decision document. The assumptions listed in the Proposed Plan are no longer valid	Y	Y
3		Additional cleanup is needed at Rawhide Ranchettes	Y	Y
4		Clean up is needed at Waterman, Chicago and Carson-Buzzo Smelters.	Y	Y
5	5	MOU needed with BLM to facilitate clean up	Y	Y

In light of these issues, the following recommendations were made in the 2010 Five-Year Review Report.

Table 3 – Recommendations and Follow-up Actions Noted in the 2010 Five-Year Review Report.

#	OU	Issue	Recommendations/Follow-up Actions	Party Responsible	Date of Completion
1	1	ICs have not been fully implemented	Revise ordinance	UDEQ/Town of Stockton	Fall 2010
2	2	No final decision document	Complete Record of Decision	UDEQ	Not Completed
3		Assumptions listed in the Proposed Plan are no longer valid	Revise Proposed Plan	UDEQ	September 2015
4		Additional clean up needed at Rawhides Ranchettes	Perform non-time critical removal action	EPA	May 2011

5		Clean up needed at Waterman, Chicago and Carson Buzzo Smelters and B&B Subdivision	Post signs Perform Remedial Design and Remedial Action	UDEQ and EPA	September 2011
6	5	MOU needed with BLM to enable clean up	Establish MOU with BLM	EPA	Not Completed

Status of Recommendations from Last Review

OU1

Recommendation/Follow up Action: Revise Ordinance – Completed Fall 2010

At the time of the 2010 Five-Year review the town of Stockton was in the process of installing a sanitary sewer system. DERR and the EPA assisted in the development of a soil management plan that described how contaminated soils were to be handled during the excavation and installation of the sanitary sewer system as well as future development and construction projects. As part of the sewer project, Stockton designed and received a permit for a repository to accept contaminated material excavated during construction activities and to satisfy outstanding requirements listed in the Town Ordinance #2000-4. Stockton incorporated the soil management plan into the Town Ordinance in the fall of 2010. Since the 2010 Five-Year review the sewer project has been completed, and all excavated contaminated soil was placed within the Stockton repository. Construction activities have taken place at three properties within the town boundaries since the last Five-Year review. One of the properties was located in an area with subsurface contamination and the excavated soil was handled according to the soil management plan. All construction activities within town boundaries were coordinated with the Mayor's office.

OU2

Recommendation/Follow up Action: Complete Record of Decision – Not Completed

An updated Revised Feasibility Study (URFS) for OU2 was completed in June 2014 by the EPA and the UDEQ. The URFS incorporated results from sampling performed during 2009 and 2011 as well as updated evaluations of both human health and ecological risk. The URFS identified and screened several remedial technologies and selected the most promising for further evaluation. The following six remedial alternatives were evaluated:

Alternative 1: No action.

Alternative 2: Excavation of contaminated material in excess of action levels to a depth of 18 inches and off-site disposal.

Alternative 3: Cover contaminated material in excess of action levels with clean soil.

Alternative 4: Excavation of contaminated material in excess of action levels to a depth of 18 inches and disposal in an on-site repository with a RCRA Subtitle C cap.

Alternative 5: Excavate all contaminated soil in non-residential areas. Excavate contaminated soil to a depth of 18 inches in residential areas. Place excavated soil in an on-site repository with a RCRA Subtitle-C cap.

Alternative 6 Excavate all contaminated soil in non-residential areas. Excavate contaminated soil to a depth of 18 inches in residential areas. Place excavated soil in an on-site repository with a soil cover cap.

It is anticipated that a Record of Decision will be completed in 2016.

Recommendation/Follow up Action: Revise Proposed Plan – Completed September 2015

A revised Proposed Plan was prepared by the EPA and the UDEQ in 2015. The Proposed Plan summarizes the possible OU2 cleanup alternatives and presents Alternative 2: Excavation of contaminated material in excess of action levels to a depth of 18 inches and off-site disposal as the agencies preferred alternative.

The Proposed Plan was published in September of 2015 and the public review and comment period is ongoing at the time of this Five-Year review. The comment period ends on November 21, 2015.

Recommendation/Follow up Action: Perform Removal at Rawhide Ranchettes – Completed May 2011

A second Removal Action was performed from October 2010 to May 2011 on four lots within the Rawhide Ranchettes Subdivision. Lead and arsenic contaminated soil was excavated to a depth of 12 inches and disposed at an off-site facility. Work was completed May 2011.

Recommendation/Follow up Action: Post signs (Waterman Smelter)-September 2011

Signs cautioning the public were placed at four locations around the Waterman Smelter where soils contained elevated levels of lead and arsenic. The signs were installed on

September 21, 2011, completing the recommendation. The current condition of the signs is described in the Site Inspection section of this report.

Recommendation/Follow up Action: Perform Remedial Design and Remedial Action (Waterman, Chicago, and Carson Buzzo Smelters and B&B Subdivision) – Not Completed

Due to differences in land use and potential exposure pathways, the EPA and UDEQ created OU6 to address the Chicago and Carson Buzzo Smelters. OU2 currently incorporates the Waterman Smelter, Rawhide Ranchettes and the B&B Subdivision. RD and RA activities have not been performed at the remaining portions of OU2 or OU6 at this time. Recommendation is open.

Recommendation/Follow up Action: Establish an MOU with BLM – Not Completed

The EPA has not established any type of agreement or enforcement mechanism with the BLM at this time. However BLM performed cleanup activities on the portion of OU5 north of the Waterman Smelter.

VI. FIVE-YEAR REVIEW PROCESS

Administrative Components

The Jacobs Smelter Superfund Site Five-Year Review was led by Thomas Daniels, UDEQ Project Manager of the Site. The following team members assisted in the review:

Dave Allison, UDEQ Community Affairs Specialist
Hans Millican, UDEQ Superfund Projects Manager
Lisa Lloyd, USEPA Region 8, Remedial Project Manager

From May 1 to August 31, 2015, the review team established a review schedule which included:

- Community Involvement
- Document Review
- Data Review
- Site Inspection
- Community Interviews
- Review of Institutional Controls, and
- Five-Year Review Report Development and Review

Community Involvement

The EPA's comprehensive Five-Year Review Guidance states that at a minimum the community should be notified that a Five-Year review will be completed and again notified when the review is completed. In accordance with the community involvement

requirements of the Five-Year review a public notice was published on May 17, 2015, in the *Toole Transcript Newspaper* announcing the Five-Year Review of the Jacobs Smelter Site was to be conducted (see Attachment A).

Document Review

The Five-Year Review included a review of relevant documents including the OU1 ROD and RA completion documents, construction completion documents for OU3, OU4, OU5 and the Rawhide Ranchettes, the Updated Revised Feasibility Study for OU2 and the Proposed Plan for OU2.

Data Review

Results from characterization sampling incorporated into the URFS for OU2 as well as confirmation sampling results at OU4, OU5 and the Rawhide Ranchettes were evaluated and incorporated into this Five-Year review.

Site Inspection

An inspection of the Site was conducted June 11, 2015, by Thomas Daniels, Hans Millican and Dave Allison of UDEQ. The purpose of the inspection was to: assess the protectiveness of the remedies constructed for OU1, OU3, OU4, OU5 and the Rawhide Ranchettes, including the disposition of the repository; evaluate the effectiveness of the warning signs placed at the Waterman Smelter; and determine if land use assumptions for the Waterman Smelter and OU6 remain accurate.

Inspection of properties within OU1 showed that fill, landscaping and vegetation on the cleaned properties remain in good condition.

Inspection of the Rawhide Ranchettes subdivision showed that the fill, landscaping and vegetation on the developed properties remain in good condition and lots 12 and 13 remain undeveloped. Inspection of the repository south of Lot 18 showed that the vegetation remains in good condition; however; the fence on the south side of the repository has been damaged by grazing livestock and is in need of repair. Damage to the fence on the north side of the repository has been prevented by the installation of an electric fence to keep livestock from pushing into the fence.

Inspection of the Waterman Smelter and other properties within OU2 showed that three signs installed in 2011 are intact, have not been vandalized, and by the resurgence of vegetation appear to be effectively warning the public of risks associated with Site contaminants. One of the signs has fallen over and needs to be repaired. OU2 remains unfenced and is easily accessible.

Inspection of OU3 showed that the cap is still intact and its integrity has not been breached, the vegetated cover on both the northern and southern portions of OU3 is well established and the fencing around OU3 is still intact.

Inspection of OU4 showed that vegetation over the whole property is well established. The gravel mound is still intact over the contaminated soil that was left in place.

Inspection of the OU5 area north of Stockton showed that the fence erected by the BLM in 2005 is still intact. Inspection of the OU5 area north of the Waterman Smelter showed that vegetation over the excavated area is well established.

Inspection of OU6 showed that the property owner of the Chicago Smelter has performed significant improvements of the property since the 2010 inspection. Improvements include the construction of a new fence and gate that restrict access and contain grazing livestock, removal of smelter debris and tilling/leveling portions of the property. The area surrounding the Carson Buzzo Smelter has also been tilled and levelled and the inspection team was unable to find the actual location of the smelter. The land use at OU6 remains agricultural, consisting mostly of the free ranging of livestock.

Community Interviews

During the Five-Year Review the UDEQ conducted a number of interviews with local officials and property owners to obtain their opinion and concerns at the Jacobs Superfund Site. Community interviews were conducted by the UDEQ from June 1 through August 31, 2015. Attachment B contains a summary of the community interviews.

Review of Institutional Controls

In order to inform the current and future property owners about the contamination remaining below 18 inches on properties cleaned up as part of OU1 and within the roadways and alleys, institutional controls (ICs) were developed by UDEQ and incorporated by the Town of Stockton through an ordinance. The ICs were designed to protect property owners from exposure to contaminated soil and allow them to manage contaminated soils disturbed during household gardening and landscaping activities and to protect workers and residents during construction activities on residential and public property within the town of Stockton.

The Town of Stockton adopted Ordinance #2000-4 to address excavation and development within OU1 of the Jacobs Smelter Superfund Site on May 8, 2001. The ordinance requires permit applications for all construction work that requires excavation below 18 inches, to ensure excavated material is tested and handled according to appropriate state and federal regulations.

In 2004 the Town of Stockton started investigating the feasibility of installing a municipal sanitary sewer system and requested the UDEQ's and the EPA's assistance in evaluating the effectiveness of Ordinance #2000-4 and its impact on the installation of the sewer. This evaluation found that while the remedy remains protective, several items

and actions described in the Ordinance, namely the construction of a repository for contaminated material excavated within the Town, had not been implemented.

Due to funding issues and lack of community support, the sewer project was postponed until spring 2010. As part of the sewer project, Stockton designed, received a permit for and constructed a repository to accept contaminated material excavated during construction activities associated with the sewer project and to satisfy one of the outstanding requirements listed in the Town Ordinance. The Rawhide Ranchettes and B&B Subdivisions are also covered by the Town Ordinance. This addresses one of the issues noted in the 2010 Five-Year Review.

Titan LLC, the developer of the Rawhide Ranchettes was required to record a certified copy of the Administrative Order on Consent with the Tooele County Recorder's Office for any property that contained lead and arsenic levels in excess of the established action levels, including the repository. The Order also required that the developer conduct monthly inspection reports of the repository and roadways for one year after the completion of the Removal Action and yearly inspections thereafter. Despite discovering lead concentrations on several of the lots within the Rawhide Ranchettes subdivision the only property for which recording a copy of the AOC was required was the repository itself, which remains in the possession of the developer.

KUCC recorded an Environmental Covenant on OU4 on May 26, 2009, with Tooele County.

VII. TECHNICAL ASSESSMENT

Question A: Is the remedy functioning as intended by the decision documents?

Yes. The review of documents, risk assumptions and the result of the Site inspection indicates that the remedies are functioning as intended by the ROD and Action Memorandum for OU1 and the Action Memoranda for OU3 and OU4 and the Rawhide Ranchettes (within OU2).

The excavation of the lead and arsenic contaminated soil associated with the time critical removal action and the remedial action associated with OU1 and the subsequent backfilling and landscaping has achieved the remedial objectives necessary to minimize direct contact with or ingestion of contaminants in soil. The fill and landscaping on the cleaned properties appear to remain in good condition.

The fill and landscaping on the majority of the properties within the Rawhide Ranchettes are in good condition and the asphalt paving placed over the non-hazardous contaminated soil remains in place and is in good condition. The soil cap over the repository remains intact and in good repair, however, the fence surrounding the repository is in need of repair. The additional cleanup performed in 2011 addressed the properties with lead concentration above the cleanup levels specified in the AOC and these properties also remain in good condition.

The soil cap, vegetative cover and fencing installed at OU3 have achieved the objectives described in the action memorandum and remain protective of human health and the environment. The soil cap remains in good condition. The vegetative cover is well established and the fencing continues to effectively control access.

The excavation and off-site disposal of contaminated soil at OU4 has effectively minimized direct contact with or ingestion of the contaminants in the soil. The gravel hill that remains over the contamination left in place provides an adequate barrier to the remaining contamination.

The remedies for OU1, the Rawhide Ranchettes (within OU2), OU3 and OU4 are functioning as intended by the decision documents.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection still valid?

The exposure assumptions are currently not valid. The toxicity data, cleanup levels and remedial action objectives used at the time of the remedy selection are still valid for OU1, the Rawhide Ranchettes (within OU2), OU3 and OU4.

Cleanup levels set for this site were presented in the July 29, 1999 OU1 ROD. These clean-up numbers were derived in the document entitled Preliminary Remediation Goals (PRGs) for Addressing Risks to Human Health from Exposure to Chemicals in Jacobs Smelter Soil (prepared by EPA, June 1999). Because these documents were developed prior to EPA's RAGS Part F (2009) guidance, the exposure assumptions for the inhalation exposure pathway were conducted differently. The exposure metric that was used in the ROD and the PRG document used inhalation concentrations that were based on ingestion rate and body weight (mg/kg-day). The updated methodology uses the concentration of chemical in the air, with the exposure metric of ug/m3. While there is no significant change in clean-up levels, it is important to present the most current methodology that is used for the inhalation pathway. No additional work needs to be done to address this change.

A remedy has not been selected and documented in a ROD for OU2, OU5 or OU6. Human health and ecological risk assessments have not been conducted for OU6 at this time.

Question C: Has any other information come to light that would call into question the protectiveness of the remedy.

No.

Summary of Technical Assessment

According to the data reviewed, the Site inspection and the community interviews, the remedies are functioning as intended by the ROD and associated Action Memoranda for OU1, the Rawhide Ranchettes, OU3 and OU4. There have been no changes in the physical conditions of OU1, OU3 or OU4 that would affect the protectiveness of the remedies performed. The 2011 cleanup performed at the Rawhide Ranchettes subdivision addressed the deficiencies noted in the 2010 Five-Year review. The finalizing of a soils management plan and construction of a repository by Stockton addresses the deficiencies noted in the 2010 Five-Year review.

There have been no changes in the toxicity factors for the contaminants of concern nor has there been a change to the standardized risk assessment methodology that could affect the protectiveness of the remedies performed for OU1, the Rawhide Ranchettes, OU3 or OU4.

Human health and ecological risks due to lead and arsenic contamination remain at the Waterman Smelter and B&B subdivision within OU2, as well as OU5 and OU6.

VIII. ISSUES

Table 4 – Issues 2015 Five-Year Review

#	OU#	Issue	Affects Protectiveness (Yes/No)	
			Current	Future
1	2	There is no final decision document	Yes	Yes
2		Cleanup is needed at the Waterman Smelter and B&B subdivision	Yes	Yes
3	5	MOU or other type of agreement is needed with BLM to facilitate cleanup	Yes	Yes
4		Cleanup is needed at OU5 north of Stockton	Yes	Yes
5	6	Human health and ecological risk have not been evaluated for agricultural land use at OU6	Yes	Yes
6		Cleanup is needed at OU6	Yes	Yes

IX. RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Table 5 – Recommendations and Follow-Up Actions 2015 Five-Year Review

#	OU	Issue	Recommendations/Follow Up Actions	Party Responsible	Milestone Date
1	2	There is no final decision document	Complete Record of Decision	UDEQ/EPA	9/30/2016
2	2	Cleanup is needed at Waterman Smelter and B&B	Implementation of Remedial Design and Remedial Action	UDEQ/EPA	12/31/2018

		subdivision			
3	5	An agreement is needed with BLM to facilitate cleanup	Potential MOU with BLM	EPA	9/30/2016
4	5	Cleanup is needed at OU5 north of Stockton	Implement Removal or Remedial Action at OU5	BLM	12/31/2018
5	6	Human health and ecological risk have not been evaluated for agricultural land use at OU6	Conduct an agricultural risk assessment and additional characterization	UDEQ/EPA	12/31/2017
6	6	Cleanup is needed at OU6	RI/FS for OU6 followed by ROD	UDEQ/EPA	12/31/2017

X. PROTECTIVENESS STATEMENTS

The remedy at OU1 is protective of human health and the environment the immediate threats posed by the contamination associated with OU1 has been addressed. The excavation and off-site disposal of the top 18 inches of contaminated soil performed during the time critical removal and the State-lead remedial action construction activities for OU1 have effectively eliminated the majority of the risk associated with the Jacobs Smelter. The risk associated with the contaminated soil remaining after excavation is reduced by the 18 inches of clean fill and top soil and the landscaping placed on each property. A Stockton ordinance and the associated soil management plan and repository address risks if excavation occurs in areas with contaminated soil below 18 inches.

The remedy performed on the Rawhide Ranchettes Subdivision within OU2 is now protective of human health and the environment. A non-time critical removal was performed by the EPA to address contaminated soil on four lots within the subdivision in 2010 to 2011. Remedial action has not been implemented at the Waterman Smelter and B&B subdivision portions of OU2.

The remedy at OU3 is protective of human health and the environment. The immediate threat posed by the contamination associated with OU3 has been addressed. The cap, vegetative cover and fence installed on the Stockton Rail Yard provide an adequate barrier to exposure to contaminated soil in OU3.

The remedy at OU4 is protective of human health and the environment. The immediate threats posed by the contamination associated with OU4 have been addressed. The excavation, stabilization and disposal of contaminated soil effectively reduces the risk of exposure to contaminated soil. The contaminated soil remaining within OU4 lies underneath a large gravel hill and is not easily accessible. An Environmental Covenant recorded at the Tooele County Recorder's Office for this parcel describes sampling and clean up that is needed if the gravel hill is ever disturbed.

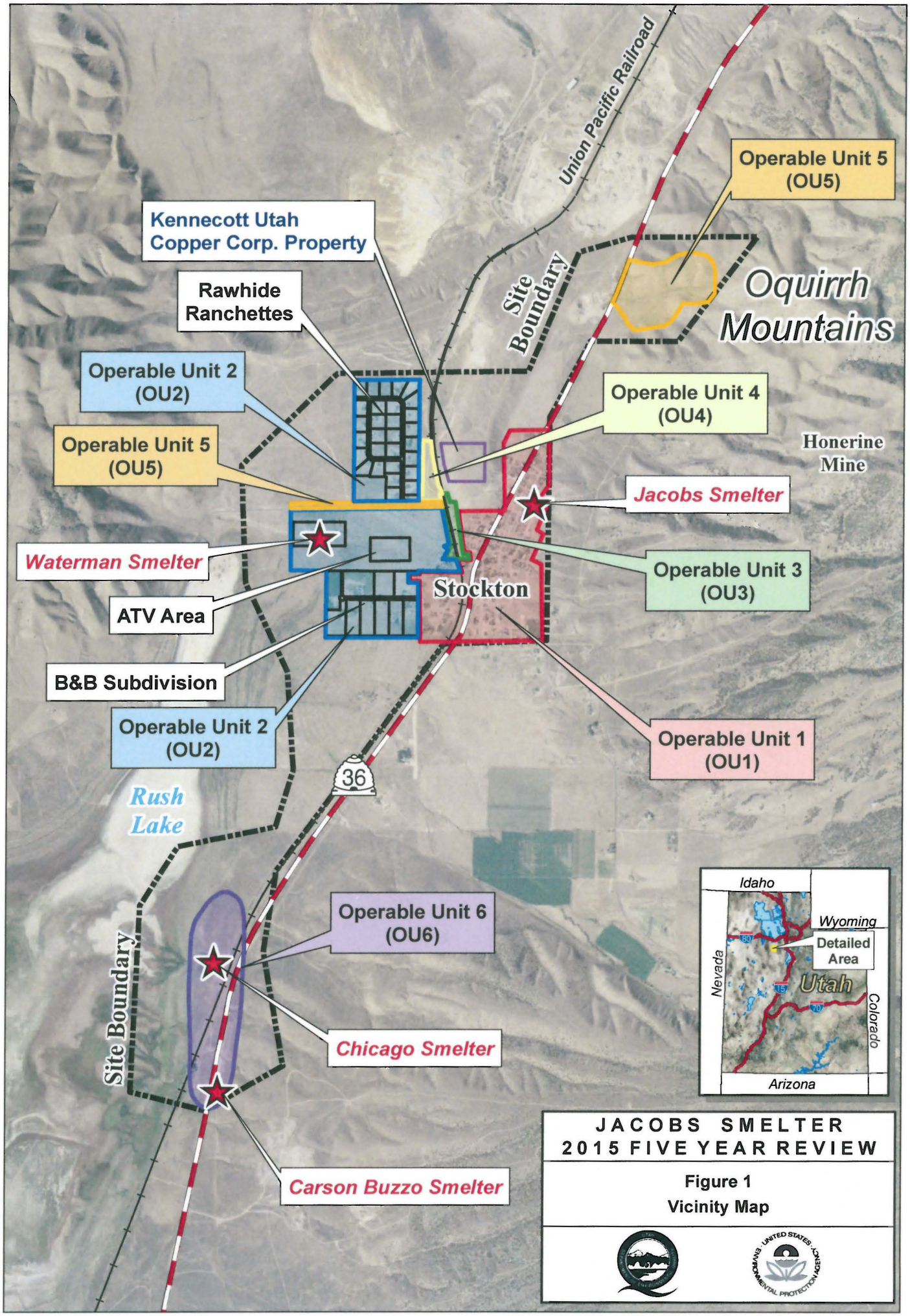
The remedy performed at the portions of OU5 north of the Waterman Smelter is protective of human health and the environment. Remedial action has not been implemented at the portion of OU5 northeast of Stockton.

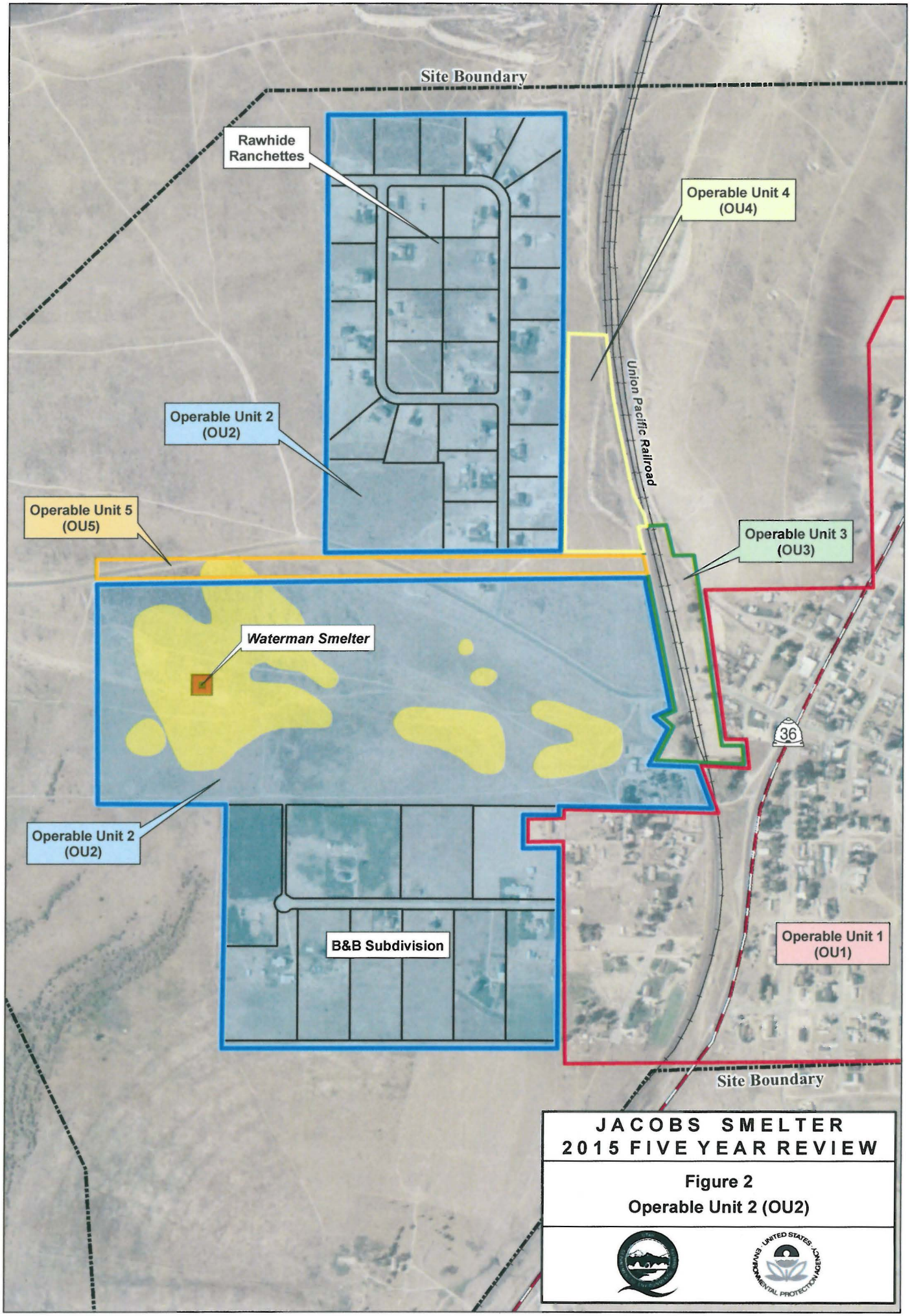
Remedial action has not been implemented for OU6.

XI. NEXT REVIEW

The next review is to be conducted within five years of the completion of this Five-Year review report. The completion date is the date of the signature cover sheet attached to the front of this report.

FIGURES


Union Pacific Railroad
Operable Unit 5 (OU5)
Kennecott Utah Copper Corp. Property
Rawhide Ranchettes
Site Boundary
Oquirrh Mountains
Operable Unit 2 (OU2)
Operable Unit 4 (OU4)
Operable Unit 5 (OU5)
Honerine Mine
Jacobs Smelter
Waterman Smelter
Operable Unit 3 (OU3)
Stockton
ATV Area
B&B Subdivision
Operable Unit 2 (OU2)
Operable Unit 1 (OU1)
36
Rush Lake
Operable Unit 6 (OU6)
Site Boundary
Chicago Smelter
Carson Buzzo Smelter
Idaho
Wyoming
Detailed Area
Nevada
Utah
Colorado
Arizona
JACOBS SMELTER
2015 FIVE YEAR REVIEW
Figure 1
Vicinity Map



JACOBS SMELTER
2015 FIVE YEAR REVIEW

Figure 2
Operable Unit 2 (OU2)


Remedial Action Cleanup
Emergency Removal Cleanup
N
W
E
S
0 0.015 0.03 0.06 0.09 0.12
Miles
JACOBS SMELTER
2015 FIVE YEAR REVIEW
Figure 3
Operable Unit 1 (OU1)
Removal and Remedial Actions


Lot 13
Lot 12
Lot 11
Lot 10
Lot 9
Lot 8
Lot 14
Lot 27
Lot 26
Lot 7
Lot 28
Lot 25
Lot 15
Lot 6
Contaminated Soil Beneath Roadway
Lot 29
Lot 24
Lot 16
Lot 5
Lot 30
Lot 23
Lot 17
Lot 4
Lot 18
Lot 19
Lot 20
Lot 3
Lot 21
Lot 2
Repository
Lot 22
Lot 1
Lots
Capped Areas
Rawhide Ranchettes Boundary
Rawhide Ranchetes 2011 Cleanup
Rawhide Ranchetes 2001 Cleanup
N
W
E
S
0 0.0150.03 0.06 0.09 0.12
Miles
JACOBS SMELTER
2015 FIVE YEAR REVIEW
Figure 4
Rawhide Ranchettes
Removal Actions
UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

JACOBS SMELTER
2015 FIVE YEAR REVIEW

Figure 5
Operable Unit 3 (OU3)
Removal Action

JACOBS SMELTER
2015 FIVE YEAR REVIEW

Figure 6
Operable Unit 4 (OU4)
Removal Action

JACOBS SMELTER
2015 FIVE YEAR REVIEW

Figure 7
Operable Unit 5 (OU5)
Removal Action

ATTACHMENTS

Attachment A

Public Notice

PUBLIC NOTICE

UDEQ U.S. EPA

Five-Year Review of Jacobs Smelter Superfund Site

Tooele County, UT

The Utah Department of Environmental Quality (UDEQ) in cooperation with the U.S. Environmental Protection Agency (EPA) is conducting the third Five-Year Review of the Jacobs Smelter Superfund Site. The site is located in Tooele County, approximately five miles south of the City of Tooele and includes the Town of Stockton and surrounding areas.

The purpose of a Five-Year Review is to determine whether or not cleanup and other actions taken at the site are protective of human health and the environment. The Five-Year Review will include a review of site documents, community interviews, and a site inspection to evaluate all remedy components as well as the status of land-use controls. Upon completion of the review, a report will be made available to the public.

The Stockton area was the center of a silver and base-metal mining, milling and smelting district from the 1860's until 1970's. Historical smelting operations left behind tailings, slag and other waste products with elevated concentrations of lead and other heavy metals. The site is comprised of six Operable Units (OU) where the cleanups of lead and arsenic contaminated soils have occurred. Cleanups were completed at OU1-Stockton residential areas, OU3-Union Pacific Railroad right-of-way, and portions of OU4-Kennecott property and OU-5-Bureau of Land Management property. OU2-Waterman Smelter areas west of town and OU6-Chicago and Carson Buzzo Smelters south of town are currently being evaluated for future cleanup.

The Jacobs Smelter Superfund Site information is available at:
Tooele City Library
128 West Vine Street
Tooele, UT 84074
Phone: (435) 882-2182, and online at the U.S. EPA website: http://www2.epa.gov/region8/jacobs-smelter .

If you would like more information on the Five-Year Review or participate in an interview, please contact:

Thomas Daniels
UDEQ Project Manager
Phone: (801) 536-4090
Email: tdaniels@utah.gov

Dave Allison
UDEQ Community Involvement
Phone: (801) 536-4479
Email: dallison@utah.gov

Attachment B

Documents Reviewed

Documents Reviewed:

HRS Listing Package, Jacobs Smelter Superfund Site

Record of Decision
Jacobs Smelter Superfund Site
Operable Unit One

Final Remedial Investigation Report
Jacobs Smelter–Operable Unit Two
July 2003

Final Feasibility Study Report
Jacobs Smelter Operable Unit Two
December 2003

Final Revised Feasibility Study Report
Jacobs Smelter Operable Unit Two
July 2004

Proposed Plan
Jacobs Smelter Operable Unit Two
September 2004

Jacobs Smelter NPL Site
Stockton, Utah
Operable Unit 4 – Kennecott Waterman Area Parcel
Removal Action Final Report
May 2009

Characterization and Soil Assessment of Lead and Arsenic Contamination
Kennecott, Stockton, Northeast Parcel
December 2008

Remedial Actions Report
Union Pacific Railroad Right-of-way
Stockton, Utah
January 28, 2003

Environmental Testing and Evaluation
Proposed Rawhide Ranchettes Subdivision
New Saddle Drive north of County Road off Main Street
Stockton, Utah
January 10, 2000

First Five-Year Review Report
Jacobs Smelter Superfund Site
Stockton, Utah
September 2005

Five-Year Review Report
Jacobs Smelter Superfund Site
Stockton, Utah
September 2010

Trip Report
Removal Action
EPA Facility ID: UT002391472
Jacobs Smelter
February 2011

Final Pollution Report (POLREP#2)
Jacobs Smelter
Autumn 2011

CERCLA Time Critical Removal Action Final Report
Jacobs Smelter OU5-Waterman Area
Lead Contaminated Soil Removal
Stockton, UT
December 2012

Final Updated Revised Feasibility Study Report
Jacobs Smelter Site
Operable Unit 2
Stockton, UT
June 2014

Proposed Plan
Jacobs Smelter OU2
September 2014

Attachment C

Site Inspection Checklist and Narrative

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Jacobs Smelter	**Date of inspection: 6/11/2015**
Location and Region: Tooele County, Utah, Region 8	**EPA ID: UT002391472**
Agency, office, or company leading the Five-Year review: UDEQ	**Weather/temperature: Warm, windy, approximately 80 degrees**

Remedy Includes: (Check all that apply)

X Landfill cover/containment
X Access controls
X Institutional controls
• Groundwater pump and treatment
• Surface water collection and treatment
• Other_____

• Monitored natural attenuation
• Groundwater containment
• Vertical barrier walls

Attachments: • Inspection Narrative attached •

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _____ _____ _____
Name Title Date
Interviewed • at site • at office • by phone Phone no. _____
Problems, suggestions; • Report attached _____

2. **O&M staff** _____ _____ _____
Name Title Date
Interviewed • at site • at office • by phone Phone no. _____
Problems, suggestions; • Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency:
Contact: ____ _____ _ _____
Name Title Date Phone no.
Problems; suggestions; • Report attached See Attachment D

Agency:
Contact:
Name Title Date Phone no.
Problems; suggestions; •

Agency:
Contact:
Name Title Date Phone no.
Problems; suggestions; •

Agency: Salt Lake Valley Health Department
Contact _____ _____
Name Title Date Phone no.
Problems; suggestions; • _____

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4. **Other interviews** (optional) • See Attachment D

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	• O&M manual	• Readily available	• Up to date	X N/A
	• As-built drawings	• Readily available	• Up to date	X N/A
	• Maintenance logs	• Readily available	• Up to date	X N/A
	Remarks			
2.	**Site-Specific Health and Safety Plan**	• Readily available	• Up to date	X N/A
	• Contingency plan/emergency response plan	• Readily available	• Up to date	X N/A
	Remarks			
3.	**O&M and OSHA Training Records**	• Readily available	• Up to date	X N/A
	Remarks			
4.	**Permits and Service Agreements**			
	• Air discharge permit	• Readily available	• Up to date	X N/A
	• Effluent discharge	• Readily available	• Up to date	X N/A
	• Waste disposal, POTW	• Readily available	• Up to date	X N/A
	• Other permits	• Readily available	• Up to date	X N/A
	Remarks			
6.	**Settlement Monument Records**	• Readily available	• Up to date	X N/A
	Remarks			
7.	**Groundwater Monitoring Records**	• Readily available	• Up to date	X N/A
	Remarks			
8.	**Leachate Extraction Records**	• Readily available	• Up to date	X N/A
	Remarks			
9.	**Discharge Compliance Records**			
	• Air	• Readily available	• Up to date	X N/A
	• Water (effluent)	• Readily available	• Up to date	X N/A
	Remarks			
10.	**Daily Access/Security Logs**	• Readily available	• Up to date	X N/A
	Remarks			

IV. O&M COSTS

1. **O&M Organization**
   - State in-house
   - PRP in-house
   - Federal Facility in-house
   - Other_____
   - Contractor for State
   - Contractor for PRP
   - Contractor for Federal Facility

2. **O&M Cost Records**
   - Readily available
   - Up to date
   - Funding mechanism/agreement in place

   Original O&M cost estimate_____ • Breakdown attached

   Total annual cost by year for review period if available

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ • Breakdown attached
   Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS X Applicable • N/A

A. Fencing

1. **Fencing damaged** • Location shown on site map • Gates secured N/A
   Remarks: Fences around OU3 are intact and continue to limit access, the fence surrounding the repository south of Rawhide Ranchettes is damaged as well as the gate and need to be repaired.

B. Other Access Restrictions

1. **Signs and other security measures** • Location shown on site map N/A
   Remarks: Three of the four signs placed in undeveloped areas of OU2 are intact and free from vandalism, the fourth sign has been pushed over and is in need of repairs.

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented • Yes X No • N/A
Site conditions imply ICs not being fully enforced • Yes X No • N/A

Type of monitoring (*e.g.*, self-reporting, drive by) Drive by
Frequency _____
Responsible party/agency UDEQ
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date • Yes • No X N/A
Reports are verified by the lead agency • Yes • No X N/A

Specific requirements in deed or decision documents have been met • Yes • No X N/A
Violations have been reported • Yes • No X N/A
Other problems or suggestions: • Report attached

_____
_____
_____
_____

2. **Adequacy** X• ICs are adequate • ICs are inadequate N/A
Remarks: No new development was observed during the site inspection

D. General

1. **Vandalism/trespassing** • Location shown on site map No vandalism evident
Remarks: One of the warning signs on the undeveloped portion of OU2 has been pushed over. Access to the undeveloped portion of OU2 remains unrestricted

2. **Land use changes on site** X N/A
Remarks _____
_____

3. **Land use changes off site** X N/A
Remarks _____
_____

VI. GENERAL SITE CONDITIONS

A. Roads • Applicable X N/A

1. **Roads damaged** • Location shown on site map • Roads adequate X N/A
Remarks _____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS • Applicable X N/A

A. Landfill Surface

1. **Settlement** (Low spots) • Location shown on site map • Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** • Location shown on site map • Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** • Location shown on site map • Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** • Location shown on site map • Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** • Grass • Cover properly established • No signs of stress
   • Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** • N/A
   Remarks_____

7. **Bulges** • Location shown on site map • Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** • Wet areas/water damage not evident
   • Wet areas • Location shown on site map Areal extent_____
   • Ponding • Location shown on site map Areal extent_____
   • Seeps • Location shown on site map Areal extent_____
   • Soft subgrade • Location shown on site map Areal extent_____
   Remarks_____

9.	**Slope Instability** • Slides • Location shown on site map • No evidence of slope instability Areal extent_____ Remarks_____
B. Benches	• Applicable • N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)
1.	**Flows Bypass Bench** • Location shown on site map • N/A or okay Remarks_____
2.	**Bench Breached** • Location shown on site map • N/A or okay Remarks_____
3.	**Bench Overtopped** • Location shown on site map • N/A or okay Remarks_____
C. Letdown Channels	Applicable • N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)
1.	**Settlement** • Location shown on site map • No evidence of settlement Areal extent_____ Depth_____ Remarks_____
2.	**Material Degradation** • Location shown on site map • No evidence of degradation Material type_____ Areal extent_____ Remarks_____
3.	**Erosion** • Location shown on site map • No evidence of erosion Areal extent_____ Depth_____ Remarks_____

4. **Undercutting** • Location shown on site map • No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ • No obstructions
• Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
• No evidence of excessive growth
• Vegetation in channels does not obstruct flow
• Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations • Applicable X N/A

1. **Gas Vents** • Active • Passive
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance
• N/A
Remarks_____

2. **Gas Monitoring Probes**
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance • N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance • N/A
Remarks_____

4. **Leachate Extraction Wells**
• Properly secured/locked • Functioning • Routinely sampled • Good condition
• Evidence of leakage at penetration • Needs Maintenance • N/A
Remarks_____

5. **Settlement Monuments** • Located • Routinely surveyed • N/A
Remarks_____

E. Gas Collection and Treatment • Applicable X N/A

1. **Gas Treatment Facilities**
   - • Flaring • Thermal destruction • Collection for reuse
   - • Good condition • Needs Maintenance

   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   - • Good condition • Needs Maintenance

   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   - • Good condition • Needs Maintenance • N/A

   Remarks_____

F. Cover Drainage Layer • Applicable X N/A

1. **Outlet Pipes Inspected** • Functioning • N/A

   Remarks_____

2. **Outlet Rock Inspected** • Functioning • N/A

   Remarks_____

G. Detention/Sedimentation Ponds • Applicable X N/A

1. **Siltation** Areal extent_____ Depth_____ • N/A
   - • Siltation not evident

   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   - • Erosion not evident

   Remarks_____

3. **Outlet Works** • Functioning • N/A

   Remarks_____

4. **Dam** • Functioning • N/A

   Remarks_____

H. Retaining Walls • Applicable X N/A

1. **Deformations** • Location shown on site map • Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** • Location shown on site map • Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge • Applicable X N/A

1. **Siltation** • Location shown on site map • Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** • Location shown on site map • N/A
   • Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** • Location shown on site map • Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** • Functioning • N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS • Applicable X N/A

1. **Settlement** • Location shown on site map • Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   • Performance not monitored
   Frequency_____ • Evidence of breaching
   Head differential_____
   Remarks_____

C. Treatment System • Applicable X N/A

1. **Treatment Train** (Check components that apply)
   - Metals removal • Oil/water separation • Bioremediation
   - Air stripping • Carbon adsorbers
   - Filters_____
   - Additive (*e.g.*, chelation agent, flocculent)_____
   - Others_____
   - Good condition • Needs Maintenance
   - Sampling ports properly marked and functional
   - Sampling/maintenance log displayed and up to date
   - Equipment properly identified
   - Quantity of groundwater treated annually_____
   - Quantity of surface water treated annually_____

   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   - N/A • Good condition • Needs Maintenance

   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   - N/A • Good condition • Proper secondary containment • Needs Maintenance

   Remarks_____

4. **Discharge Structure and Appurtenances**
   - N/A • Good condition • Needs Maintenance

   Remarks_____

5. **Treatment Building(s)**
   - N/A • Good condition (esp. roof and doorways) • Needs repair
   - Chemicals and equipment properly stored

   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   - Properly secured/locked • Functioning • Routinely sampled • Good condition
   - All required wells located • Needs Maintenance • N/A

   Remarks_____

D. Monitoring Data X NA

1. Monitoring Data
   - Is routinely submitted on time • Is of acceptable quality

2. Monitoring data suggests:
   - Groundwater plume is effectively contained • Contaminant concentrations are declining

D. Monitored Natural Attenuation X NA

1. **Monitoring Wells** (natural attenuation remedy)
   - Properly secured/locked
   - Functioning
   - Routinely sampled
   - Good condition
   - All required wells located
   - Needs Maintenance
   - N/A

Remarks_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

See Narrative

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C.	Early Indicators of Potential Remedy Problems
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Jacobs Smelter Superfund Site Five-Year Review

Site Inspection:6/11/2015

Inspectors: Thomas Daniels
Hans Millican
Dave Allison

On June 11, 2011, DERR representatives conducted a site inspection of the Jacobs Smelter Superfund Site located in Tooele County Utah. The purpose of the inspection was to assess the protectiveness of the remedies performed at the Site and to evaluate Site conditions.

Operable Unit 1
DERR representative performed a walk through inspection of properties within Stockton that had been cleaned up during the OU1 removal and remedial actions. Inspection of the properties within OU1 showed that the clean fill and landscaping remain intact throughout the Site and that vegetation on cleaned properties through Stockton is well established with no obvious signs of erosion.

Operable Unit 2:
DERR representatives performed a walkthrough inspection of the Rawhide Ranchettes subdivision, the Rawhide Ranchettes Repository, the Waterman Smelter and the B&B subdivision. The purpose of the inspection was to assess the protectiveness of the remedies performed at the Site and to evaluate Site conditions.

Properties within the Rawhide Ranchettes subdivision remain well vegetated with no detectable signs of erosion. The asphalt covering over the contamination placed in the roadway remains in good shape and is crack free with no noticeable signs of erosion. The fence and gate around the repository are in disrepair, however, the vegetative cover is well established and the repository cap remains intact. An electric fence on the northern side of the repository has protected it from lives stock.

Access remains unrestricted through the undeveloped portions of OU2. One of the warning signs had been damaged and was no longer standing, the other three signs were intact and undamaged. The resurgence of vegetation in areas near the signs demonstrates that they are effectively informing the public of dangers associated with the contamination.

Operable Unit 3:
Inspection of OU3 showed that the 16-inch cap is still intact and its intergrity has not been breached. The vegetated cove on both the northern and southern portions of OU3 is well established and the fencing around OU3 is in place and intact.

Operable Unit 4:
Inspection of OU4 showed that vegetation throughout OU4 is well established, the gravel mound over the contamination left in place is still intact with no signs of excavation or erosion.

Operable Unit 5:
Inspection of the OU5 areas north of Stockton showed that the fence is still intact and preventing access. Vegetation at the cleaned up area north of the Waterman Smelter is well established.

Operable Unit 6:
DERR representatives conducted a walkthrough inspection of the Chicago Smelter and discovered that the property owner has made significant improvements on the property, including a new gate and fence. Smelter debris had either been removed from the property or had been moved to another location. The area around the Carson Buzzo Smelter had been tilled and the inspection team was unable to determine the location of the smelter. Land use at OU6 remains agricultural.

Photo Log Jacobs Smelter Superfund Site Five-Year Review Site Inspection

Photo 1: Jacobs Smelter Stockton. UT

Photo 2: Cleaned up property Stockton, UT

Photo 3: Cleaned up property Stockton, UT

Photo 4: Cleaned up property Stockton, UT

Photo 5: Cleaned up property Stockton, UT

Photo 6: Cleaned up properties Stockton, UT

Photo 7: Cleaned up property Stockton, UT

Photo 8: Electric Fence Rawhide Ranchettes repository

Photo 9: Damaged fence and gate, Rawhide Ranchettes repository

Photo 10: Warning sign OU2

Photo 11: Waterman Smelter

Photo 12: Damaged warning sign

Photo 13: OU3

Photo 14: OU3

Photo15: OU4 (note vegetation)

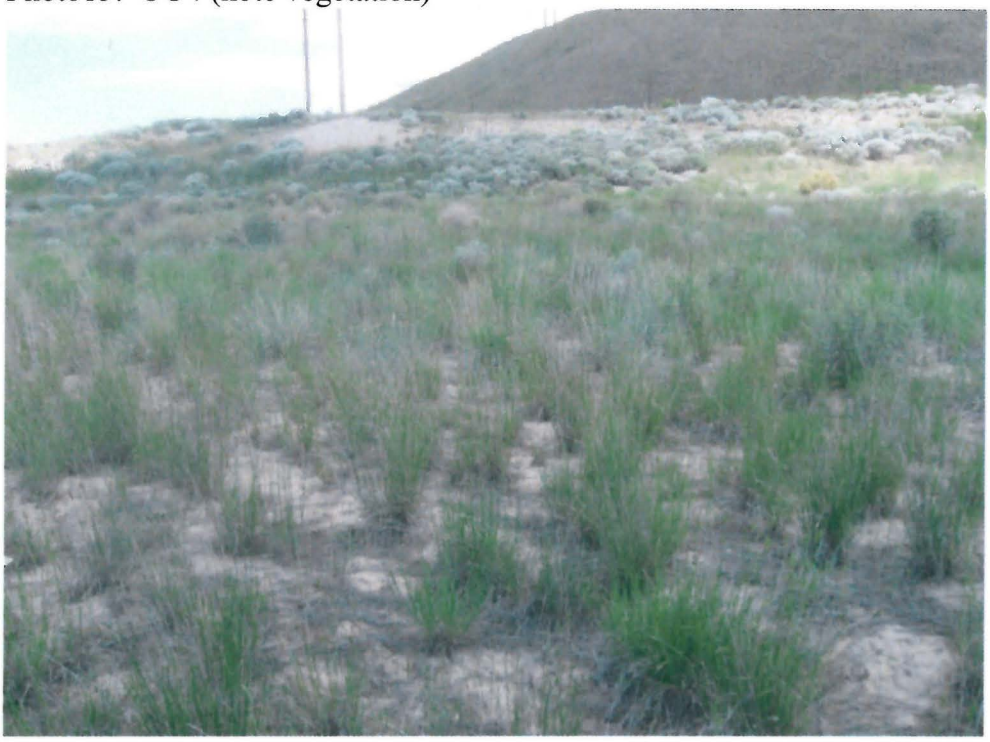

Photo 16: OU4

Photo 17: OU4

Photo 18: OU5

Photo 19: OU5

Photo 20: OU5

Photo 21: OU6

Photo 22: OU6

Photo 23: OU6

Photo 24: OU6

Photo 25: OU6

Photo 26: OU6

Attachment D

Community Interviews

Jacobs Smelter Superfund Site
Five-Year Review
Interview of Community Members

Site Name: Jacobs Smelter EPA ID: UT0002391472	Date: 11 August 2015
Type of Contact: Visit	Contact Made By: Dave Allison, Thomas Daniels, Scott Baird, Utah Department of Environmental Quality
Person Contacted	
Name: Representative Doug Sagers	Organization: State Representative Doug Sagers, District 21, Utah Legislature
Address: 243 Home Town Ct Tooele, UT 84074	Telephone Number: (435) 843-3754 Email Address: dougsagers@le.utah.gov

1. **How long have you lived in the area?** State Representative Doug Sagers District 21 has represented the residents of Tooele County since 2010. Representative Sagers currently lives in Tooele, grew up in the area, and served as Mayor of the City of Tooele from 1974-1981.

2. **Are you aware of the Jacobs Smelter Superfund site and the work that was completed to address environmental contamination?** Rep. Sagers knows the Jacobs Smelter cleanup history. Rep. Sagers was aware of the Tooele area mining history and began researching the Jacobs Smelter Superfund Site at the request of a constituent in 2010. Rep. Sagers has advocated for more clean up by the UDEQ and EPAfor the Jacobs Smelter site and nearby Bauer Tailings Dump

3. **What's your overall impression (your general sentiment) of the work that was completed at the Jacobs Smelter Superfund Site?** Rep. Sagers said he has some concerns regarding the roadways in Stockton where lead and arsenic contaminated soils are buried. Also the cleanup history in the Rawhide Ranchettes and B&B subdivisions in Stockton are not communicated to new buyers. Rep. Sagers wants to see repairs to the fencing around the soil repository used to clean up the Rawhide Ranchettes subdivision.

   Although unrelated to the Jacobs Smelter Superfund Site, Rep. Sagers wants the Bauer Tailings Dump site soils to be re-evaluated and made a priority by the EPA. The Bauer site is located southwest of the current Tooele County landfill, north of the Stockton Bar and west of SR-36. Bauer was an active dumping site for silver and lead ore smelting from 1920-1979, and where an adhesives manufacturing facility, discharged coal fine residue and organic solvents in the Bauer vicinity Rep. Sagers understands EPA has looked at the Bauer area and determined the site does not have a population big enough to warrant a response action. Rep.

Sagers said this area is used by recreational vehicles and also susceptible to uncontrolled dust events of contaminated soils exposing anyone nearby.

4. **What would you say are the effects that site operations had on the community surrounding the Jacobs Smelter Superfund Site?** Rep. Sagers said as UDEQ and EPA work towards clean up, until the Jacobs Smelter contaminated soils are addressed, there will be a risk to public health. Rep. Sagers has visited the Stockton area and is aware of an ATV trail on top of land targeted for clean up, the footprint of the former Waterman Smelter. There are warning signs posted around the site yet nothing preventing access to the property.

5. **Are you aware of any community concerns regarding the Jacobs Smelter Superfund Site? If so, please give details.** Rep. Sagers said similar concerns of unprotected lead and arsenic contaminated soils in and around Stockton summarize the issues communicated to him by residents.

6. **Over the past five years, have there been any events, incidents, or activities at the Jacobs Smelter Superfund Site that concern you? If so, please provide details.** Rep. Sagers said nothing recently and only the re-sampling/removal work in 2010 of four properties in the Rawhide Ranchettes properties were of concern.

7. **Are you aware of any unusual activities at the Jacobs Smelter Superfund Site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give date(s), details, and outcome(s) if known.** Rep. Sagers is not aware of any recent activities requiring a response from local authorities.

8. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Jacobs Smelter Superfund Site?** Rep. Sagers is appreciative of what outreach he has received from UDEQ and EPA over the years. Rep. Sagers has contacted the Director of the UDEQ in the past and does not have any reservations calling UDEQ or EPA with questions or concerns as they arise.

9. **Are you aware of any concerns about Jacobs Smelter Superfund Site impacts on historic preservation?** Rep. Sagers was not aware of any impacts the Jacobs Smelter Superfund Site had on historic preservation to the Stockton community.

10. **Do you have any additional comments, suggestions, or recommendations regarding the Jacobs Smelter Superfund Site?** Rep. Sagers wants the area protective and will add any support he can to expedite cleanup efforts in Stockton and the Tooele community.

Jacobs Smelter Superfund Site
Five-Year Review
Interview of Local Agencies

Site Name: Jacobs Smelter EPA ID: UT0002391472	3 June 2015
Type of Contact: Visit	Contact Made By: Dave Allison, Utah Department of Environmental Quality
Person Contacted	
Name: Jeff Coombs, Tooele County Health Dept. Director Bryan Slade, Environmental Health Director	Organization: Tooele County Health Department
Address: Tooele Office- 151 N. Main Street Tooele Utah 84074	Telephone Number: (435) 277-2440 Email Address: http://tooelehealth.org

1. **Is your organization/department aware of the Jacobs Smelter Superfund site and the actions taken/underway to address environmental contamination?** Tooele County Health officials, Coombs and Slade, know the Stockton area and Jacobs Smelter lead soil sites and keep apprised of any ongoing activities which directly involve their offices. No department officials could recall dealing directly with Jacobs Smelter related issues over the last five years.

2. **What's your overall impression (your general sentiment) of the actions taken/underway at the Jacobs Smelter Superfund Site?** Tooele Department Officials said they are aware of historic mining areas in and around Stockton requiring clean-up of lead contaminated soil. No one from the State or EPA has contacted their respective offices informing them of an environmental investigation or incident requiring their assistance.

3. **Does your office conduct routine communications and/or activities (site visits, inspections, reporting activities, participation in meetings, etc.) which pertain to or involve the Jacobs Smelter Superfund Site? If so, please briefly summarize the purpose and results of these communications and/or activities over the last five years.** Tooele County officials do not have any routine related tasks associated with their office and would only conduct visits or inspections if a reported situation developed at the Jacobs Smelter site.

4. **Are you aware of any community concerns regarding the Jacobs Smelter Superfund Site, as it pertains to actions taken or underway to address environmental contamination? If so, please give details.** No recent or specific complaints about Jacobs Smelter were reported to Tooele County Health. The County is aware of past community concerns with smelter related contamination in Stockton and has occasional questions from the community.

5. **Over the past five years, have there been any complaints, violations, or other incidents (e.g., vandalism, trespassing, or emergency responses) at or related to the Jacobs Smelter Superfund Site requiring your office to respond? If so, please give details of the events and results of the response.** Coombs and Slade were not aware of

any issues with the Jacobs Smelter site and were not notified of any formal incidents by UDEQ or EPA. Coombs and Slade have worked with Emergency Response Coordination contacts at UDEQ if an incident occurs in the Stockton area.

6. **Do you feel well informed about the activities and progress over the last five years at the Jacobs Smelter Superfund Site? Do you know how to contact the Environmental Protection Agency and/or UDEQ – DERR if you have questions or concerns about the Jacobs Smelter Superfund Site?** Coombs and Slade have not had any regular information regarding the Jacobs Smelter Superfund Site over the last five years. The Tooele County Health Department has experience with another Superfund cleanup at the International Smelter Superfund Site and has established contacts at EPA and UDEQ.

7. **Over the past five years, have there been any changes in your department's policies or regulations that might impact the Jacobs Smelter Superfund Site from a perspective of land use, water rights, redevelopment, and site management? Any changes to your role? If so, please describe the changes and potential impact each might have.** Coombs and Slade said the County does not have any development permitting responsibilities for contaminated areas in Stockton such as local soils ordinances. Coombs and Slade said Stockton's Soil Ordinance rests with Stockton City to enforce and the County does not have policies or regulations impacting any remedial actions at Jacobs Smelter requiring oversight.

8. **Over the past five years, have there been any changes in land use surrounding the Jacobs Smelter Superfund Site to your knowledge? Are you aware of potential future changes in land use? If so, please describe including any concerns you and/or your agency might have with land use changes.** Tooele County Environmental Health is knowledgeable of the cleanup area and does not know any changes Stockton City may have in regard to land use. Stockton City would maintain any zoning or land use determinations for the Jacobs Smelter area. Any concerns the Health Department would be to have a cleanup happen to better protect the public health from exposed areas of unprotected mining wastes.

9. **Do you have any comments, suggestions, or recommendations regarding the Jacobs Smelter Superfund Site management (for example, questions pertaining to institutional controls)? If you have questions or are aware of potential problems in the future, what problems might arise? What are your agencies' concerns if such do arise?** No additional comments related to Jacobs Smelters Sites. Tooele County Health is aware of the area and expects EPA and UDEQ to clean up the Jacobs Smelter as planned.

   Coombs and Slade said the County has requested EPA take another look at the Bauer Tailings site, north of Stockton, as more of a concern than Jacobs Smelter. Tooele County has a landfill operation the Health Department feels is at risk and wind-blown contaminated soils moving further north than EPA suggests is of concern to the Health Department. The County knows EPA has made a determination based upon a lack of receptors/population and wants EPA to reconsider the site.

10. **Do you have any additional comments?** No additional comments.

Jacobs Smelter Superfund Site
Five-Year Review
Interview of Community Members

Site Name: Jacobs Smelter EPA ID: UT0002391472	Date: 27 August 2015
Type of Contact: Visit	Contact Made By: Dave Allison and Thomas Daniels, Utah Department of Environmental Quality
Person Contacted	
Name: Mayor Mark Whitney	Organization: Town of Stockton
Address: Town Of Stockton PO BOX 240 18 North Johnson Street Stockton, Utah 84071	Telephone Number: (435) 882-3877 Email Address: mwhitney@stocktontown.org

1. **How long have you lived in the area?** Mayor Whitney is in his second term and moved to Stockton, Utah in 2007.

2. **Are you aware of the Jacobs Smelter Superfund site and the work that was completed to address environmental contamination?** Mayor Whitney said he has worked with the UDEQ and EPA on Jacobs Smelter related activities during his tenure. Within the last five years, Mayor Whitney oversaw a comprehensive sewer upgrade and wastewater treatment plant system built for the town which required active compliance with the Stockton Soils Ordinance. Also, Mayor Whitney has worked with UDEQ and EPA and on past remediation projects at the Rawhide Ranchettes and B& B Subdivisions.

3. **What's your overall impression (your general sentiment) of the work that was completed at the Jacobs Smelter Superfund Site?** Mayor Whitney said the cleanup process is working well for the town and expects future cleanup work for the remaining site management areas to work as well.

4. **What would you say are the effects that site operations had on the community surrounding the Jacobs Smelter Superfund Site?** Mayor Whitney said the cleanup work from the past continues to be protective and the soil management plan with the soils ordinance keeps cleanup areas maintained. As part of the sewer system upgrade, Mayor Whitney said the maps from UDEQ worked well and were coordinated with the City drawings for the excavation work and installation of the sewer pipe. As well, Stockton received a permit for a local a repository to accept contaminated soils which can be used for future disposal needs.

5. **Are you aware of any community concerns regarding the Jacobs Smelter Superfund Site? If so, please give details.** Mayor Whitney hears a complaint now and then regarding the quality of soil placed during the earlier (1999-2000) removal work of the residential yards not being able to any grow vegetation. What concerns were raised by a couple of property owners regarding lead and arsenic soils in the Rawhide Ranchettes subdivision were addressed with resampling and clean up by the UDEQ and EPA in 2010.

6. **Over the past five years, have there been any events, incidents, or activities at the Jacobs Smelter Superfund Site that concern you? If so, please provide details.** Mayor Whitney said he wants the area associated with the former Waterman Smelter addressed as soon as possible. There are noticeable signs of ATV trails directly on areas with high lead and arsenic soils. The warning signs are not deterring the trespassing ATV traffic which could kick up dust in a town with regular wind activity.

7. **Are you aware of any unusual activities at the Jacobs Smelter Superfund Site such as vandalism, trespassing, or emergency responses from local authorities? If so, please give date(s), details, and outcome(s) if known.** Mayor Whitney said there haven't been any events related to the Jacobs Smelter Superfund Site requiring a response. A fire damaged the town water supply in 2014 and not in an area where past cleanup took place.

8. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Jacobs Smelter Superfund Site?** Mayor Whitney said he has had consistent information provided to him by the UDEQ and EPA and has established contacts with both agencies for any questions.

9. **Are you aware of any concerns about Jacobs Smelter Superfund Site impacts on historic preservation?** Mayor Whitney is not aware of any impacts to historic preservation for the Stockton community.

10. **Do you have any additional comments, suggestions, or recommendations regarding the Jacobs Smelter Superfund Site?** Mayor Whitney requested good communication to continue and outreach efforts to be made to the residents where future work is required.

Jacobs Smelter Superfund Site
Five-Year Review
Interview of Local Agencies

Site Name: Jacobs Smelter Superfund Site EPA ID: UT0002391472	31 August 2015
Type of Contact: Visit	Contact Made By: Dave Allison, Utah Department of Environmental Quality
Person Contacted	
Name: *Blaine Gehring, County Planner*	Organization: Tooele County
Address: Tooele County Offices 47 S. Main Tooele, UT 84074	Telephone Number: (435) 843-3274 Email Address: bgehring@co.*tooele*.ut.us

1. **Is your organization/department aware of the Jacobs Smelter Superfund Site and the actions underway to address environmental contamination?** Gehring has worked 1 ½ years in his current position as Tooele County Planner. Gehring was not aware of the Jacobs Smelter Superfund Site history and would like more information regarding any areas applicable to his department. The Tooele County Building and Development Services Division is charged with long and short range planning, development and building/land use code enforcement in unincorporated Tooele County.

2. **What's your overall impression (your general sentiment) of the actions performed at the Jacobs Smelter Superfund Site?** Gehring said any permitting or related development decisions for his department would rest with areas outside of Stockton town limits. The majority of the operable units at Jacobs Smelter are within city limits except for the former Carson-Buzzo and Chicago Smelter areas which would fall into County authority. The County would want any information pertaining to future cleanup for these areas for consideration.

3. **Does your office conduct routine communications and/or activities (site visits, inspections, reporting activities, participation in meetings, etc.) for the Jacobs Smelter Superfund Site? If so, please briefly summarize the purpose and results of these communications and/or activities over the past several years.** Gehring has not had any communications or reporting responsibilities regarding County property near the Jacobs Smelter Superfund site.

4. **Are you aware of any community concerns regarding the Jacobs Smelter Superfund Site? If so, please give details.** As Gehring was not familiar with the Jacobs Smelter Superfund Site and has not heard of any related community concerns. Gehring has had involvement with community protecting the Stockton Bar, a prominent ridge of gravel and sand from historic Lake Bonneville separating the Rush Lake and Tooele valleys.

Gehring said there is mining interest in the bar and residents fear disturbing the 15,000 year-old Stockton Bar will create a wind tunnel of hazardous dust and tailings from the former smelter areas. Gehring said the County denied a rezoning request for 47-acres in January of 2015. Gehring said the request was not compatible with the county's general plan and to protect the sand bar as a geoantiquity.

5. **Over the past five years, have there been any complaints, violations, or other incidents (e.g., vandalism, trespassing, or emergency responses) at or related to the Jacobs Smelter Superfund Site requiring your office to respond? If so, please give details of the events and results of the response.** Gehring said his Department serves as support staff for many Tooele County boards and commissions and has not heard of any incidents for the County to respond regrading Jacobs Smelter.

6. **Do you feel well informed about the site's activities and progress over the last five years? Do you know how to contact the Environmental Protection Agency if you have questions or concerns about the Jacobs Smelter Superfund Site?** Gehring said he would like more information on the Jacobs Smelter Site for his Department and would contact UDEQ or EPA with any questions.

7. **Over the past five years, have there been any changes in your department's policies or regulations that impact the Jacobs Smelter Superfund Site and/or your role? If so, please describe the changes and the impacts.** Gehring said no changes have occurred regarding zoning, planning, or road development impacting roads or the unincorporated areas around Stockton.

8. **Over the past five years, have there been any changes in land use surrounding the Jacobs Smelter Superfund Site? Are you aware of potential future changes in land use? If so, please describe.** Gehring was not aware of any land use changes for the Stockton area.

9. **Do you have any comments, suggestions, or recommendations regarding the site's management or operation (institutional controls)? If so, what types of future problems do you think (1) could occur; or (2) would concern you and/or your department?** Gehring does not foresee any issues related to the management of smelter area's at the Jacobs Smelter Site and the County. Gehring would want to be involved with any future cleanup activities which would require County considerations.

10. **Do you have any additional comments?** Gehring did not have any additional comments.